

# Farm Chemicals

Pioneer Journal  
of the Industry

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## CHEMOTHERAPY *down on the farm . . . .*

It is now possible to inoculate plants with certain newly developed chemicals to give "built-in" protection against many insect pests. These new chemicals are termed "Systemic" insecticides, and are absorbed into the "system," that is the sap stream of the crop plant — literally giving the plant a chance to "bite back" at its ancient foe.

Man applies these new systemic insecticides by conventional spray methods. Then they are absorbed through the plant foliage, and the sap stream carries them to newly growing tips where they effectively foil the insect's plan for a tender, succulent meal.

Some Systemics are already in use, and scientists expect to find other "medicines" for their ever-

growing "prescription counter" that will enable the farmer to protect his growing crop against a host of diseases and infestations.

PENNSALT, a pioneer in the Agricultural Chemicals Industry, plays an important part in the development of Systemics, and these products will join the quality line of PENCO Agricultural Chemicals that are aiding the farmer by increasing his yields of better products and bolstering his economy against losses due to disease and insects.

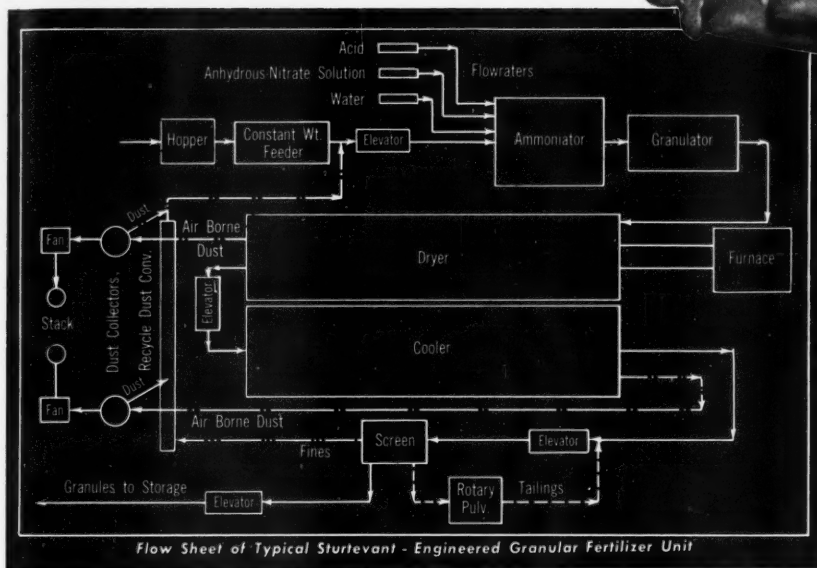
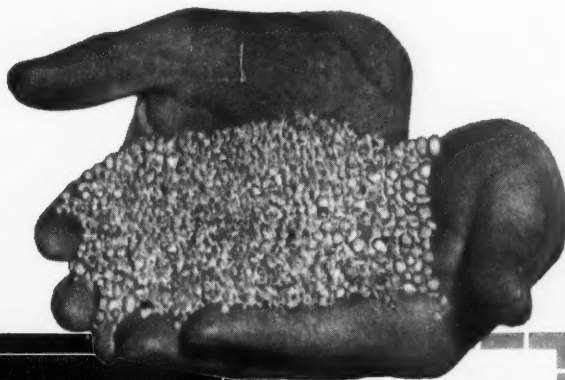
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Berkeley, Calif., Wenatchee, Yakima, Wash., Portland, Ore.



**Pennsalt  
Chemicals**

# Granular Fertilizer Can Be in Your Future, too!



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Of course, we at Sturtevant Mill Co. are not market authorities, although we do believe this experience by Canada Packers, Limited is significant.

Our business is to assist you with the designing and engineering of the best possible granular fertilizer unit for your needs — also super phosphate units and conventional mixing units, according to your requirements.

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The "OPEN DOOR" to lower operating costs over more years

PULVERIZERS • CRUSHERS • MICRON-GRINDERS • GRANULATORS • SEPARATORS  
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Desired capacity is \_\_\_\_\_

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☐ MICRON-GRINDING ☐ SEPARATING ☐ MIXING  
☐ SCREENING ☐ FEEDING  
☐ MECHANICAL DEN & EXCAVATORS ☐ ELEVATING & CONVEYING

STURTEVANT MILL COMPANY, 140 Clayton Street, Boston 22, Mass.

# Farm Chemicals

FEBRUARY, 1956

No. 2

Vol. 119

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## In this issue . . .

A fertilizer sales boom may be ahead, with current government soil bank, highways and watershed-flood prevention programs shaping up. According to the on-the-spot report by John Harms on page 40, some effects may be forthcoming during 1956.

Anthony Chemical's superphosphate plant at Opelousas, La., is only the second in the nation to use a TVA cone mixer over a Broadfield den, eliminating need for a pug mill. For a description by James A. Bourdier, of the plant and its operation see page 42.

That article on the spray pilot shortage that appeared in FC last November brought quite a bit of comment, and some new ideas. George Peter is back again this month (page 45) to tell you more about the situation, the views of some pilots, and what might be done.

Both attendance and interest were high at the charter meeting of the Weed Society of America. Some of the major problems discussed are reviewed on page 47, including that of education, seemingly a big stumbling block to future development of herbicide use.

As already announced, 1954-55 fertilizer consumption dropped slightly, while plant nutrient quantities continued to gain. See page 49 for an article on the preliminary USDA report, including tables showing regional consumption of fertilizer and plant nutrients.

## Cover story

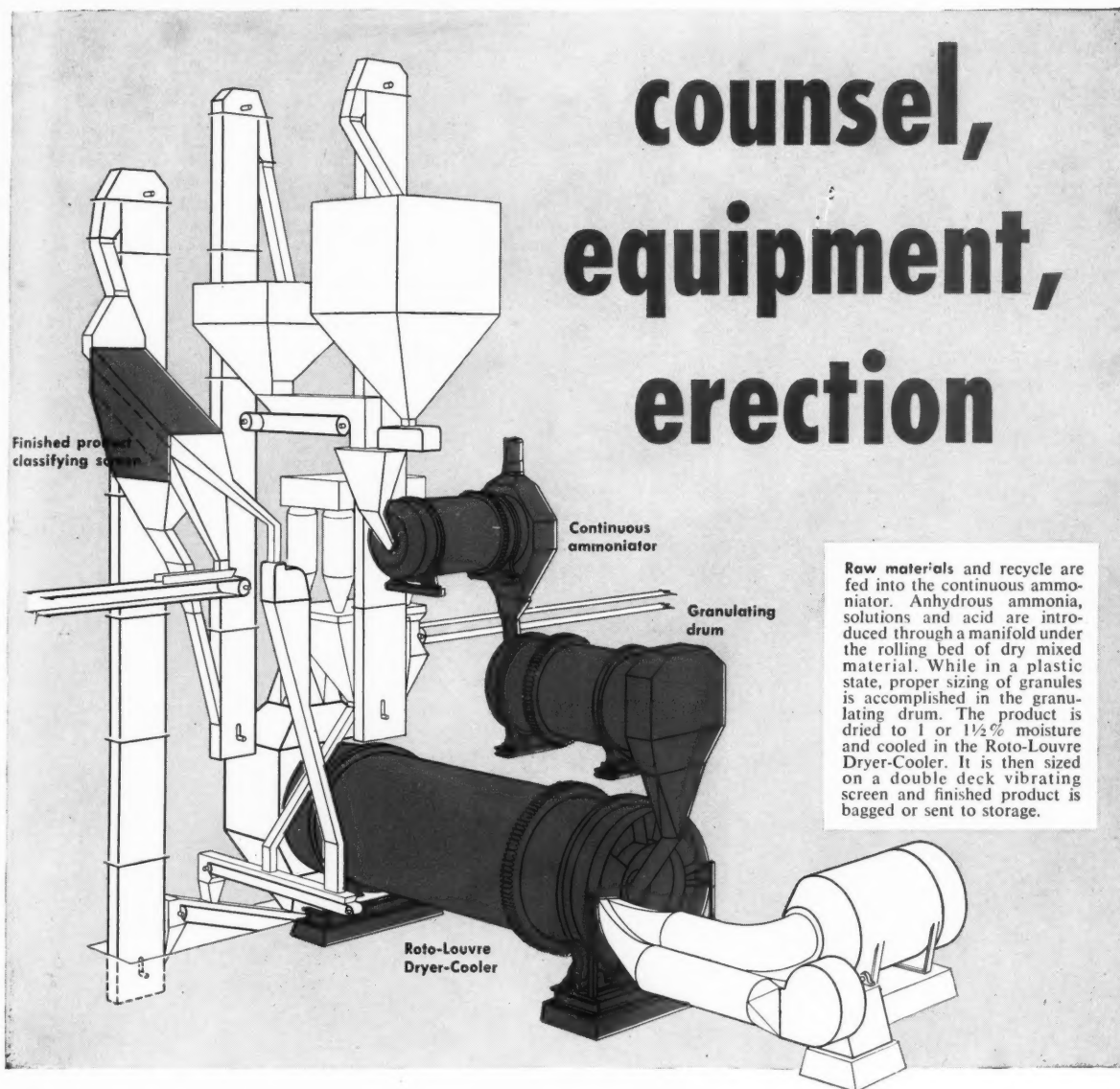
Pictured are unloading facilities at the Opelousas, La., superphosphate factory of Anthony Chemicals. While acid is discharged into the horizontal tank on the right, a workman readies a car load of phosphate dust for storage in the large vertical unit. A description of the plant with more photos begins on page 42.

FARM CHEMICALS



For your TVA fertilizer system . . . LINK-BELT supplies

# counsel, equipment, erection



Raw materials and recycle are fed into the continuous ammoniator. Anhydrous ammonia, solutions and acid are introduced through a manifold under the rolling bed of dry mixed material. While in a plastic state, proper sizing of granules is accomplished in the granulating drum. The product is dried to 1 or 1½% moisture and cooled in the Roto-Louvre Dryer-Cooler. It is then sized on a double deck vibrating screen and finished product is bagged or sent to storage.

## Here's your experienced source for the continuous ammoniator process

The TVA Continuous Ammoniator Process answers the need for a system producing high-grade granular fertilizer with low initial and material costs. An efficient method utilizing anhydrous ammonia and ammonium nitrate solutions, it's adaptable to both new and existing plants. Several installations already have been supplied by Link-Belt, some self-liquidating in a year's production. And Link-Belt offers you complete facilities for design, equipment and erection that assure efficient performance for your plant.

Granular, conventional nitrophosphate, ammonium phosphate, ammonium nitrate, ammo-

nium sulphate, urea—Link-Belt has experience with all of them. Whether you're building a new plant or remodeling your present system, our broad facilities are your assurance of top performance and on-schedule delivery. For details, contact your nearest Link-Belt office.



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LINK-BELT COMPANY: Executive Offices, 307 N. Michigan Ave., Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

FEBRUARY, 1956

# Business & Management

## .. News of the Industry

### PCB Starts Open Pit Mining at Boron

Open pit mining began January 5 at Boron, Calif., the major step in the \$18 million development of the world's only known sodium borate deposit. The Pacific Coast Borax Co. project includes construction of new refining and concentrating plants, expected to be completed next year.

According to J. M. Gerstley, president of the firm, the conversion from 30 years of shaft-tunnel operations will greatly conserve the life of the mine. All grades and varieties of ore will be handled in the new facilities producing borate concentrates for export and the principal forms of refined borax for domestic and foreign use.

### Second Phosphorus Furnace for AAC

A new elemental phosphorus furnace, 27th in the US and the second for American Agricultural Chemical Co. at Pierce, Fla., recently began operation, increasing the design rating of this country's furnaces to approximately 530 million pounds per year.

Another furnace, with highest design rating in the US, is expected to be put into operation next July by Shea Chemical Co.

### Lion Opens Iowa, Ga, Sales Offices

New chemical sales offices have been opened by Lion Oil Co. in the Insurance Exchange Building, Des Moines, Iowa, with George C. Kempson as manager.

The firm also has moved its Montgomery, Ala., chemical sales

offices to the 1401 Building in Atlanta, Ga., with R. S. Johnson as manager.

The Des Moines office will head the newly designated midwestern sales district, and Atlanta the southeastern district.

### Cyanamid to Build Triple Super Plant

Plans for construction of a 200,000-ton-per-year triple super-phosphate plant at Brewster, Fla., have been announced by American Cyanamid Co.

Scheduled for completion in mid-1957, the plant will be built on an existing Cyanamid phosphate rock mining site.

### Four AIM Awards To Industry Films

Consolidated Mining & Smelting Co. of Canada has received, for the sixth consecutive year, an award for excellent management from the American Institute of Management. Other firms in the farm chemicals field certified as excellently managed included American Agricultural Chem. Co., Swift & Co. and the Borden Co., each for the fifth straight year.

### Farm Tax Aid from N. Division Booklet

A new booklet, "How to Save Money on Your Farm Income Tax," is now being distributed by Nitrogen Div., Allied Chemical & Dye Corp. as a service to farmers.

Prepared by the J. K. Lasser Tax Institute, the book covers computation of farm income, forms to use, farmer's self employment income, declarations for farmers and crop damage payments.

### Stauffer Uncovers Phosphate Reserve

Large mineable deposits of high grade phosphate rock have been proved by Stauffer Chemical Co. on its patents near Bear Lake, Idaho, following nearly five years of exploration and development. The rock is described as of excellent grade, free from serious faulting and close to rail transportation.

The deposit will provide a long term reserve for Stauffer's two West Coast fertilizer plants and the Garfield, Utah factory of Western Phosphates, Inc., a Stauffer associate.

Reserves in the deposits are estimated at over 5,000,000 tons of commercial grade rock and may be doubled or tripled if beneficiation of lower grade secondary beds proves feasible.

Carried out by San Francisco Chem. Co. working with Stauffer geologists, the development work included a 1400 foot adit extending at mining depth to the main phosphoria bed, a 3,000 foot drift along the main bed and a 1,500 foot raise from the adit and drift to surface elevation above the deposit.

The adit has been completed and the project should be finished at the end of the year. Cost of the development work is estimated at \$400,000.

### Phelps Dodge Aids B of M Arizona Film

Phelps Dodge Corp. has financed a new Bureau of Mines film on "Arizona and Its Natural Resources" covering the minerals, land reclamation, agriculture, scenic and other features of the state.

The 28-minute film has been released for short-term loan to service organizations, schools, societies and similar groups and has been cleared for public service TV programs.

**HOW UNION BAG BUILDS MORE  
BUSINESS FOR THE FERTILIZER INDUSTRY**

**"Now I know...  
cutting down on fertilizer  
actually costs me money"**

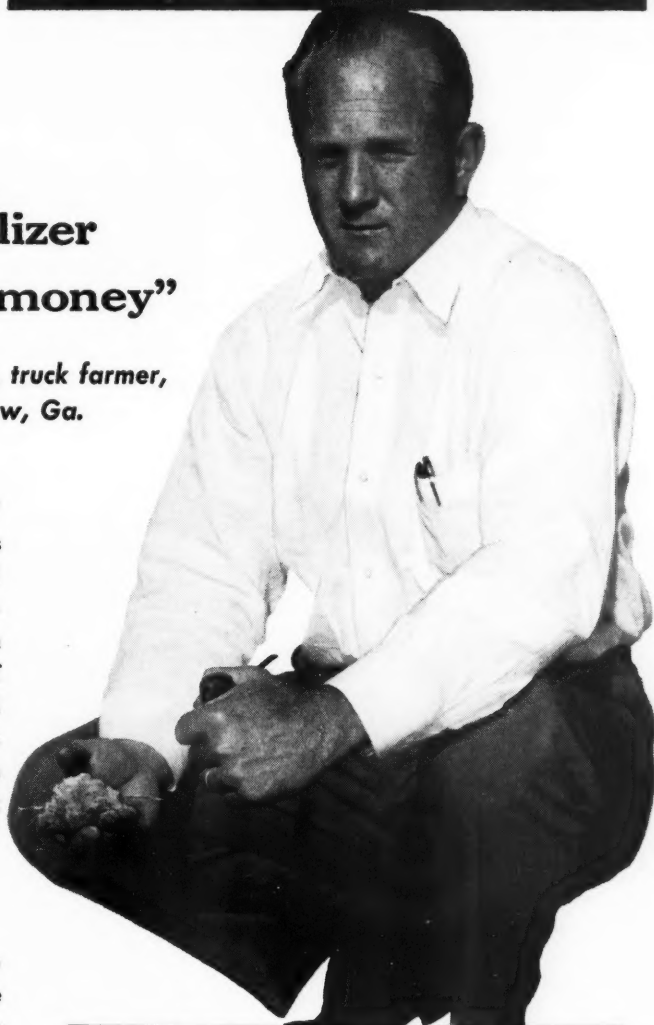
**John Patrick, truck farmer,  
Marlow, Ga.**

"I've known about fertilizer for a long time," says John Patrick, who with his brother Carl runs a 100-acre truck farm near Marlow, Ga., "but I didn't realize that every *dollar* invested in fertilizer can bring a farmer a *four dollar* return in crop value! That's how the U. S. Department of Agriculture figures it. Like a lot of farmers, I'd tried to *save* money by cutting down on fertilizer, but actually I was *losing* money, as I got lower yields on my crops. Now I know fertilizer is my best investment."

**Union's information program  
increases fertilizer use**

Mr. Patrick discovered his "profit formula" in one of the farm magazines he reads. The article was one of many prepared by Union as part of a countrywide newspaper-radio-television educational campaign to help farmers use more scientific methods.

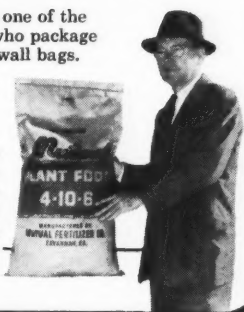
One of the main purposes of this program is to show your customers how to make the best use of fertilizer. As one of the major manufacturers of Multiwall paper sacks for fertilizer, Union Bag is happy to make this contribution to the industry.



Mutual Fertilizer Company is one of the many leading manufacturers who package their products in Union Multiwall bags.

**Mr. Charles Ellis Jr., President,  
Mutual Fertilizer Company,  
Savannah, Ga.**

"I believe Union Bag's information program on the scientific use of fertilizer will help the farmers. Union does as well with its Multiwalls as it does with its fertilizer program. We use Union Multiwalls. They're among the best."



**UNION Multiwall Bags**



**UNION BAG & PAPER CORPORATION · WOOLWORTH BUILDING, NEW YORK 7, N. Y.**

## . . . Business & Management

### IMC Holds Plant Food Sales Meet

A three-day sales conference was held by the Plant Food Div. of International Minerals & Chemical Corp. at the Piedmont Hotel, Atlanta, Ga., Jan. 9-12.

Based on a "do-it-yourself" theme, the program centered around reports in which each district sales manager discussed his own specialized experience.

Gerard J. Carney, marketing staff manager of the division, Chicago, was in charge of arrangements for the conference.

### Kern Kopters Head Visits S. America

The Helicopter Association of America president, Elynor Rudnick, has been touring Latin America to stimulate greater interest in helicopter operations.

Also president of Kern Kopters, which does crop spraying among other operations, Miss Rudnick

has toured Central America, Panama, Colombia, Ecuador, Bolivia and Chile, and was the first woman guest speaker at a Lima meeting of the American Institute of Mining, Metallurgical & Petroleum Engineers.

It is reported that a number of operators in Latin America have indicated interest in joining the organization.

### Velsicol Holds Tour Of Memphis Plant

A group of city officials, entomologists, editors and manufacturers recently toured the newly enlarged Memphis insecticide manufacturing facilities of Velsicol Chemical Corp.

During the tour, which was held in conjunction with the 9th annual Cotton Insect Research and Control Conference, John F. Kirk, Velsicol vice president in charge of sales, told the group of the firm's plans for expansion of heptachlor and endrin facilities at the Memphis plant.

### Pyrethrum Demand May Double by '60

American insecticide manufacturers are expected to import this year about eight million pounds of African pyrethrum, either dried in bales or in equivalent extract, according to figures released by African Pyrethrum Development, Inc.

The US, which at present consumes about 65 per cent of world production, will double its demand by 1960, it has been estimated by some industry members.

African producers, under the leadership of the Pyrethrum Board of Kenya and Societe Cooperative des Produits Agricoles, of the Congo, have undertaken in the past few months, according to APD, three major steps to meet anticipated demands:

1. Enlarged research for increased productivity,
2. New laboratory tests for quality control, and
3. Entomological and biological researches.

Current demand for some 100,000 pounds of pyrethrins requires some 8,000,000 pounds of flowers, shipped to the US either baled or already extracted and carried in an oil base, APD reports.

### Two New Sections For Lion Oil Dept.

Two new sections—Development and Engineering—have been created within Lion Oil Co.'s Manufacturing Dept.

Named director of development is John A. Sherred, who has been director of research development for Monsanto's Plastics Div. in St. Louis. Frank L. Emert, assistant manager of the El Dorado refinery, has been promoted to director of engineering.

The firm also announced the appointment of H. Harold Bible as director of manufacturing.



Among the city officials who toured Velsicol's Memphis plant were Col. Roane Waring, pres., Memphis Street Railway Co.; M. W. Wade, secty., Memphis Light, Gas & Water Div.; Walter Chandler, Mayor of Memphis; John M. Heiskell, Canale, Glankle, Montedonico, Boone & Locke; J. T. Dwyer, commissioner; and for Velsicol, E. T. Collinsworth, exec. vice pres.





Even the night watch knows...  
it's today's most  
wanted Triple Super



## Result:

Round-the-clock production to meet  
your needs for International's new

## TRIPLE Superphosphate

Twenty-four hours a day, seven days a week, International turns out an ever-increasing supply of a superior Triple Superphosphate. Its uniformly fine texture, greater solubility, higher content of usable phosphorus and low moisture . . . plus facilities for prompt delivery . . . make International's Triple Super among today's most-wanted phosphate products.

Like other plant food manufacturers, you'll discover that International's unique processing, natural curing and modern handling methods have produced a Triple Super that solves many problems before they start . . . gives you better ammonia-tion, higher A.P.A. and a finished product that's more acceptable to your customers. Write or wire for samples and quotations.

**INTERNATIONAL MINERALS & CHEMICAL CORPORATION**

Phosphate Chemicals Division • General Offices: 20 North Wacker Drive, Chicago 6

## . . . Business & Management

### AOAC to Review Residue Analysis

Appointment of 23 chemists to test proposed methods and develop new methods of analysis for pesticide residues on foods has been announced by the Association of Official Agricultural Chemists.

The group invited those who would like to submit methods or participate in the collaborative work to contact William Horwitz, secretary, AOAC, P. O. Box 540, Benjamin Franklin Station, Washington 4, D. C.

All chemists named to head the individual studies are employed by the Food and Drug Administration in either its District or research labs.

### W. Electro-Chem. Acquired by AP & C

American Potash & Chemical Corp. has completed acquisition of 100 per cent of the stock of Western Electrochemical Co., Henderson, Nev., through exchange of shares. Name of the

latter concern has been changed to American Potash & Chemical Corp. (Nevada) to facilitate integration into the parent organization.

Products of the Nevada firm which include ammonium and potassium perchlorate, sodium and potassium chlorate and manganese dioxide, will be sold under the Trona brand name through the AP&C sales organization.

### Fert. Production Wins for JA Group

At least one prize-winning Junior Achievement group can attribute a good portion of its success to production of plant foods. The Jaymon Chemical Co., Dayton, Ohio, a Monsanto sponsored group, marketed fertilizer, bubble bath and hand lotion to win honorable mention in the 1955 national competition for the best 1955 annual report by a JA company.

Also named the best JA chemical firm, last year it showed a net profit of \$251 and paid a five-cent stock dividend.

### 'The D-D Hop', New Shell Pop Record

"The D-D Hop," a lively new scat tune, has joined "Boll Weevil Blues" and "Corn Huskin' Blues" in the Shell Chemical Music Library. Designed essentially as a commercial to accompany Shell's 26-week sponsorship of the noon weather show over the Tobacco Network in the tobacco belt, the tune has also been prepared as a full length popular recording.

### Guano Production Sets Record in Peru

Record 1954 production of guano is reported by the Guano Administration Co., an agency of the Peruvian Government. Output of 293,977 tons in 1954 was an increase of 13 per cent over the previous year and 1955 production is estimated at 290,000 tons.

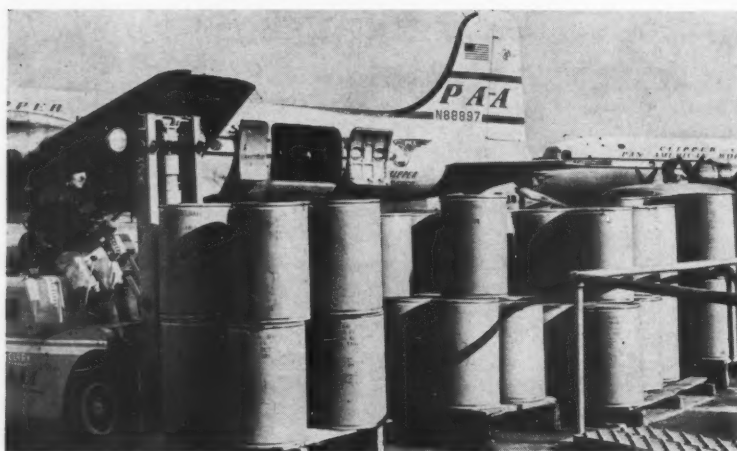
The gains are attributed to new protection methods for birds inhabiting the guano islands of the coast of Peru. The agency operates a grinding mill at the port of Callao and Pisco and another is to be erected at the end of this year in southern Peru, near a major guano source, the Chicha Islands.

### Ky. Site Selected for DuPont Plant

A site of about 900 acres near Maysville, Ky., has been chosen by DuPont Co. for a chemical plant, its third in that state. Options on four tracts of land totaling 472 acres recently were exercised by the firm, and extensions of options pending title clearance were obtained on an additional 473 acres.

DuPont stated that the land is being acquired for possible future construction.

### To Repel an Invasion



Emergency shipments of dieldrin, manufactured by Shell Chemical Corp. are loaded at Idlewild Airport for shipment to Buenos Aires, where it will be used in fighting one of the worst grasshopper plagues Argentine farmers have experienced. A total of 106,000 pounds were air-lifted.



PHOTO COURTESY WESTERN GROWERS ASSN.

## TRONA<sup>®</sup> POTASH *for Agriculture*

In 1917 state fairs were awarding prizes for outstanding farm products just as they are today. Then as now, growers depended on Trona<sup>®</sup> MURIATE OF POTASH for high quality crops. For it was in 1917 that Trona, first to produce domestic Potash when World War I pinched-off foreign sources, shipped the first train-load to the east coast. For the next twenty years Trona was the *only* domestic source of Potash and today, in spite of AMERICAN POTASH AND CHEMICAL CORPORATION'S broad diversification program, is still one of the primary basic suppliers of high grade Muriate and Sulphate of Potash for Agriculture.

MURIATE of POTASH, agricultural grades 95-98% KCL, (60% K<sub>2</sub>O minimum), regular and granular.  
SULPHATE of POTASH, agricultural grade, 95-98% K<sub>2</sub>SO<sub>4</sub> (51% K<sub>2</sub>O minimum).



*American Potash & Chemical Corporation*

**Offices** • 3030 West Sixth Street, Los Angeles 54, California  
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214 Walton Building, Atlanta 3, Georgia

**Plants** • Trona and Los Angeles, California; Henderson, Nevada  
San Antonio, Texas (American Lithium Chemicals, Inc.)

**Export Division** • 99 Park Avenue, New York 16, New York

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POTASH	CHLORATES
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SALT CAKE	MANGANESE
LITHIUM	DIOXIDE

— and a diversified line of  
specialized agricultural and  
refrigerant chemicals

## . . . Business & Management

### **Fiske Heads FDA Anniversary Group**

Named to head the Drug, Chemical and Cosmetic Industries Committee for the 50th Anniversary of the Federal Pure Food Law is A. H. Fiske, president of Eli Lilly & Co. Eugene H. Holeman, president of the Association of Food & Drug Officials, made the announcement.

Other members of the committee include C. J. Krister, DuPont Grasselli Chemicals Dept.; Wayne Yoder, American Cyanamid Co.; J. T. Larabatsos, NAC Association; and Dr. Geo. W. Fiero, Esso Standard Oil Co.

Dudley-Anderson-Yutzey, New York public relations firm, has been appointed by the AFDOUS to guide planning for the 1956 celebration, on a public service basis. The D-A-Y Washington office will serve as an information center during the year.

### **Five Safety Prizes To Lion Oil Units**

Five safety awards have been presented to Lion Oil Co., a division of Monsanto Chemical Co., four to the El Dorado chemical plant and one to the General Service Dept.

Individual safe-working awards also were presented last week at the firm's three manufacturing installations to 141 employees and to seven general service personnel, representing an aggregate of 1,345 safe man-years without a lost-time accident.

### **TVA Ammoniation Process Patented**

Application by TVA for a patent on its process for the continuous ammoniation of superphosphate has been approved by the US Patent Office. Still to be acted on is an application covering apparatus used in process.

More licenses have been issued granting permission to use the process or to make and sell the necessary equipment than for any other TVA fertilizer developments. So far licenses have been granted to 38 companies to use the process and 15 to firms to manufacture the equipment.

### **J. M. Huber Forms New Sales Unit**

A new sales unit, the General Industries Div., has been formed by J. M. Huber Corp. to serve industries including the pesticide field. Ralph R. Browning, Jr. has been named manager and will be aided by assistant divisional manager, D. P. McAdoo.

### **Atlas Board Ok's Aquaness Purchase**

Acquisition of Aquaness Corp. has been approved by the directors of Atlas Powder Co. Aquaness is a manufacturer of petroleum dehydrating compounds, corrosion inhibitors, bactericides and other chemicals used in the oil industry.

### **Staff Changes on Three Farm Mags**

**Successful Farming.** Treve Wainscott, formerly of Schrock Fert. Co. has replaced George Johnson, who was in charge of soils and crops. Johnson has joined the E. H. Brown ad agency.

**Mississippi Farmer.** New editor and general manager is Robt. E. Enlow, former associate editor of CAPPER'S FARMER.

**Nebraska Farmer.** Carl W. Deitmeyer has replaced Tom Leadley as editor and Homer Fine is the new managing editor. Deitmeyer had been managing editor and Fine associate editor respectively.

### **'56 Canadian Farm Chemical Outlook**

Canadian fertilizer consumption in 1956 will be similar to 1955 with supplies adequate to meet domestic requirements, according to the Outlook Report prepared by the Economics Div., Marketing Service, Department of Agriculture, Ottawa. The slight decrease noted in fertilizer prices during 1955 may continue in 1956, the department forecasted.

Two new mixing plants now under construction in western Ontario were expected to be in production for the 1956 spring season.

Pesticide consumption during 1956 was anticipated to be about 15 per cent over 1955 because of the increased use of herbicides and insecticides. Grasshoppers are not expected to be serious in western Canada in 1956. The report stated that manufacturing capacity is ample for all normal pesticide requirements.

### **Truesdail to Open New Honolulu Lab**

Establishment of an operating division laboratory in Honolulu has been announced by Truesdail Laboratories. Arrangements have been made to lease space in a new building soon to be erected by Hawaii Chemical Co.

### **Diamond Earnings, Sales Set Record**

In 1955, sales and earnings of Diamond Alkali Co. climbed to record levels, based on unaudited figures reported by Raymond F. Evans, chairman.

Sales totaled about \$110,280,000, an 18 per cent increase over the 1954 figure and net earnings increased 53 per cent to about \$8,440,000, the report stated.

FARM CHEMICALS



**YOU Increase**



**When Lion**

**- A Leader in Petro-Chemicals -  
Supplies Your NITROGEN NEEDS**

**HERE'S THE LION LINE-UP  
OF QUALITY NITROGEN  
FERTILIZER MATERIALS**

**Lion Anhydrous Ammonia**—82.2% nitrogen. Quality guaranteed.

**Lion Aqua Ammonia**—Ammonia content about 30%—other grades to suit your requirements.

**Lion Ammonium Nitrate Fertilizer**—Improved spherical pellets. Guaranteed 33.5% nitrogen.

**Lion Nitrogen Fertilizer Solutions**—Various types to suit your particular manufacturing needs.

**Lion Sulphate of Ammonia**—White, uniform, free flowing crystals. Guaranteed 21% nitrogen.

Now that the new fertilizer manufacturing season is in full swing, make sure you realize all the profits your plant can produce. *Where you buy* your raw materials can be vital and now, more than ever before, it pays to buy *your nitrogen needs* from Lion—a leader!

Lion nitrogen products are manufactured under rigid controls to meet exacting specifications—ending the costly production delays that result when ingredients vary in quality from day to day. With Lion products, you produce with maximum efficiency and profit—and you maintain the quality standards your customers demand.

Lion also provides an expert technical staff to assist you in solving difficult formulation and processing problems. And, throughout the year, Lion's sales building advertising tells farmers the plant food story—for your benefit. Lion's leadership in customer service stands out, offering you outstanding opportunities for increased profits—and your best season yet!

**DISTRICT SALES OFFICES:** LION OIL BUILDING, El Dorado, Ark. • INSURANCE EXCHANGE BUILDING, Des Moines, Ia.  
NATIONAL BANK OF COMMERCE BUILDING, New Orleans, La. • 1401 BUILDING, Atlanta, Ga.

**LION OIL**

A DIVISION OF MONSANTO CHEMICAL COMPANY



**COMPANY**

EL DORADO, ARKANSAS

## . . . Business & Management

### Olin-Math. Revises FC Division Setup

The eastern and western fertilizer divisions of Olin Mathieson Chemical Corp. have been combined and are now under the direction of S. L. Nevins, O-M vice-president, with headquarters in Little Rock, Ark.

Edward Block, former president of the recently acquired Blockson Chemical Co., has been named executive vice-president heading the phosphate chemical and plant food divisions including the Joliet, Ill. and Baltimore plants and the former fertilizer divisions. Operation of the Morgantown, W. Va. facilities has been transferred to the industrial chemical division.

Operations of the insecticide division are now headed by R. L. Hockley, vice-president, with headquarters in Baltimore. D. W. Drummond, vice-president is responsible for operation of the industrial chemical and hydrocarbon divisions.

### Hamilton Office for Canadian Chipman

Central administrative offices of Chipman Chemicals Ltd. will be located in Hamilton, Ont., according to J. H. D. Ross, general manager. Central sales, development, technical service, railway and production headquarters and the eastern Canadian sales

office will be at 519 Parkdale Ave.

J. G. Hastings has been named general and eastern sales manager of the firm and other appointments include L. M. Godfrey, development and technical service manager; W. P. Dean, railway service and production manager; and W. F. Crutchlow, controller. Hastings, Godfrey and Crutchlow were formerly with Canadian Industries Ltd. and Dean was with the original Chipman firm prior to its merger with CIL pesticide operations.

Two district sales offices have been established, one in Winnipeg with S. G. Pugh as western sales manager and the other at Hamilton, serving eastern Canada. The assistant eastern sales manager, under Hastings, is D. C. Mumby.

### Shell Reissues Film

Available once again to county agents and other farm leaders is Shell Chemical's film on "Corn's Hidden Enemies." Available free of charge to these workers it relates the experience of an Iowa farmer in combating soil pests.

### Planetary Factory Destroyed by Fire

Office and factory of Planetary Chemical Co., Inc. at Creve Couer, Mo., is reported destroyed by fire at a loss of \$80,000. The facilities were partially insured.

### Wooten Heads AAI, G.P. NH, Merges

Maj. Gen. Ralph H. Wooten, Mid-South Chemical Co., has been named head of the Agricultural Ammonia Institute, succeeding Mark C. Craft, Midwest Fertilizer Co. Also elected at the 5th annual AAI convention held December 5-7 in Kansas City were Tully Talbot, Chemco, 1st vice-president; Charles M. Corken, Corken's, Inc., 2nd vice-president; M. H. Carter, Farmers Supply Coop., secretary; and M. O. Raspberry, Delta Liquid Fertilizer Co., treasurer.

Mr. Craft and L. H. Wright were elected to the executive committee and new directors, filling three year terms include Otho Clark, W. D. Cook, Paul Duesterhaus, Barney Frankl, R. A. Krantz, R. E. Poethig, J. Miller Porter and S. C. Smith. James H. Andrew and Ed Bickley were named to fill unexpired terms.

At the convention, the Great Plains Anhydrous Ammonia Association voted to merge with the AAI in a move designed to strengthen the national organization.

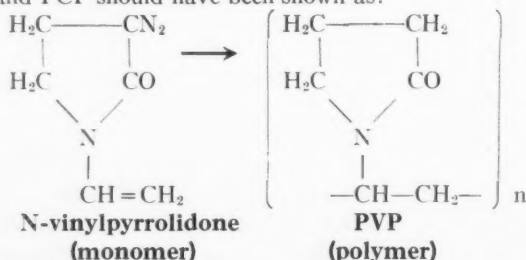
### Western Potash Now Continental

Western Potash Corp. was renamed Continental Potash Corp. at a recent annual meeting of stockholders. A change in capital was arranged, permitting issuance of one share of new stock for each five shares outstanding, to complete the \$18.5 million financing arrangements.

Clifford S. Strike, F. H. McGraw & Co., and W. F. Davey, Winnipeg Natural Gas Co. and Canadian Hydro Carbons Ltd., were elected to the board with Strike serving as chairman.

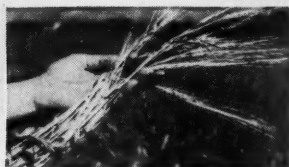
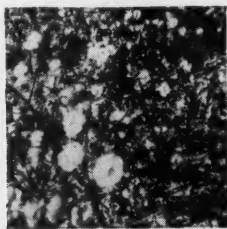
Actual potash production is anticipated sometime in 1957.

**Error.** In the January article by Henry B. Kellog on PVP-Iodine in Agricultural Pest Control, an error occurred on page 41. The correct formulae showing the relationship between N-vinylpyrrolidone and PCP should have been shown as:





**FROM PLANT TO PLANT**



# TRIPLE SUPERPHOSPHATE

- 1. RUN-OF-PILE FOR MAXIMUM AMMONIATION**
- 2. GRANULAR FOR DIRECT APPLICATION**
- 3. PROMPT SERVICE TO MEET EVERY REQUIREMENT**

The complete service offered with Triple Superphosphate from U. S. Phosphoric Products makes it your best choice from every point of view. Production controls assure the superior quality and dependability of these phosphate fertilizers; the service extras offered by Bradley & Baker assure their maximum contribution to your sales and profits. Our sales representatives will gladly help you plan your shipments.

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**TENNESSEE PRODUCTS**  
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TENNESSEE CORPORATION

**Sales agents: BRADLEY & BAKER**

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**BEST**

**for nitrogen**

**BEST**

**for your business**

**NITROLIME<sup>®</sup>**



Just as your customers demand maximum crop production, you can achieve maximum volume and profits with these two great sources of *non-acid forming nitrogen* — NITROLIME and CAL-NITRO.

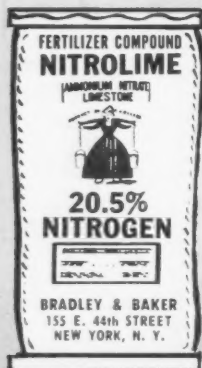
**CAL-NITRO**

TRADE MARK

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Consisting of half nitrate nitrogen and half ammonia nitrogen, the guaranteed 20.5% nitrogen content of these fertilizer compounds is an ideal economical source of the vital plant food that assures greater crops of all kinds. Both these products are perfectly balanced for fast action and resistance to leaching, are *non-acid forming* and come in handy granular form, free-flowing and easy to apply by hand or machine.

With CAL-NITRO and NITROLIME you have at your disposal an excellent merchandising program of sample displays, local newspaper advertising, radio spots and other aids. Bradley & Baker is ready to help you sell more of these better nitrogen fertilizers. Get the complete details today.



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**BRADLEY & BAKER**  
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**District Sales Offices:**

ATLANTA, GA. • INDIANAPOLIS, IND. • ST. LOUIS, MO.  
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PER  
HOUR

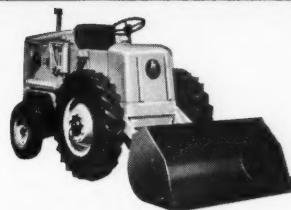
*performance* only a  
**PAYLOADER®**  
can deliver



This 1955 model HA is the youngest of three "PAYLOADER" units working at Pennsylvania Malleable Iron Corp., Lancaster, Penn. It is also the most productive tractor-shovel for its size that they have ever seen. Mr. E. F. Stolpe, the owner says, "Believe the new HA the best machine for our operations." It is used mostly for handling sand and coal—moves 30 tons per hour, 55 hours per week.

Hundreds of other owners of the new model HA are equally enthusiastic and pleasantly surprised by the superior performance and greater capacity of the new model HA. "Roll-back bucket carries more material" . . . "does the work of two machines on some operations" . . . "less spillage and practically no floor clean-up" are some of the actual comments from other owners.

It will pay you to find out what a "PAYLOADER" can do for your material handling problems. Your "PAYLOADER" Distributor is ready to show you. Use the handy coupon opposite.



**For higher lifts and  
more capacity —  
the new model HAH  
1 cu. yd. capacity**

**THE FRANK G. HOUGH CO.**  
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- ☐ Send data on Model HA (18 cu. ft.)
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**THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.**  
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## CONSTRUCTION

### Ortho Liquid Ferts. From Modesto Unit

The first unit in California Spray-Chemical Corp.'s new fertilizer plant program was opened, December 20, at Modesto. A liquid fertilizer plant capable of producing 400 tons/day of aqua ammonia and 100 tons of neutral mix fertilizer, it will serve growers in the San Joaquin valley.

Arthur W. Mohr, Calspray president who officiated at the opening ceremonies, said the facilities will make possible shipment of ready to apply formulations, tailored to specific soil and crop needs, to any part of the Sacramento and San Joaquin valleys within 24 hours.

Mayor Harry Marks pushed the button that set the machinery

in action and J. P. Arrigoni of Fabricated Metals, Inc., plant constructors, described operation of the plant to a group of Ortho dealers.

The new facilities adjoin the Calspray office, dust mill and warehouse on Crows Landing Road in Modesto. They were designed by George Wood, Calspray district manager, and Robert Hack, branch manager heading the Modesto operation, in collaboration with Arrigoni.

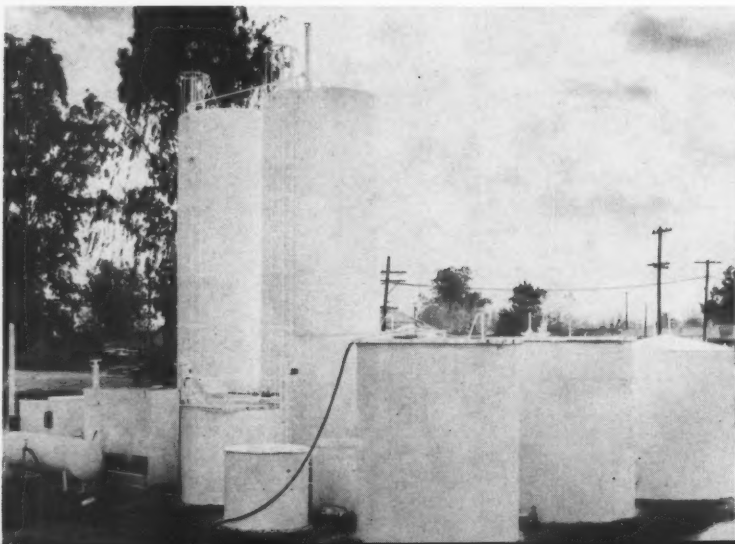
### Priddy Firm Adds Granulating Unit

Construction of a granulating unit at the Money Point, Va. plant of Charles W. Priddy & Co. is reported underway. The new plant will have a capacity of 20 tons per hour.

The all-steel structure will cover some 3,280 square feet.

Mayor Harry Marks, Modesto sets in action Calspray's liquid fertilizer plant as W. E. Jaqua, supv. of fertilizer sales and A. W. Mohr, pres., give directions.

Calspray's new liquid fertilizer plant in Modesto, Calif., is now in production, and can produce 400 tons of aqua ammonia and 100 tons of neutral mix fertilizer a day.



### IMC Program for Bonnie Expansion

Four million dollars has been appropriated by International Minerals & Chem. Corp. for the first step in a program designed to double production capacity of the Bonnie phosphate chemicals plant near Bartow, Fla.

Included in the new additions, according to Louis Ware, International president, will be a second sulfuric acid plant and new equipment for neutralization and recovery of plant effluents.

Ware stated that recent process developments and improvements have exceeded expectations and that the new dicalcium phosphate process as well as peak operation at Bonnie during recent months has given very favorable costs of production, justifying the further expansion.

Market demand for the material has exceeded present production capacity, he continued, and triple superphosphate has been so well received by the trade "that we have had to raise our sales projections for the coming fiscal year."

Referring to sums appropriated for plant waste neutralization and recovery, Ware pointed out that International is spending, in operating expenses, nearly one million dollars in Florida each year on waste disposal measures, aside from research and equipment costs.

"We expect these recovered wastes will be converted," he added, "into useful by-products and additional investments are contemplated to accomplish this in the near future, particularly in the field of fluorine chemicals."

### Goldsboro NH, Plant

A 30,000 gallon anhydrous ammonia distribution plant is scheduled to be in full operation by March 1, 1956 at Goldsboro, N. C., erected by Wayne Chemical Corp., New Bern and Weil's Fertilizer Works, Inc., Goldsboro.



## Report on the new MICHIGAN 12B



*Clark's exclusive power-shift transmission*

### **eliminates the most notorious cause of excessive maintenance**

No engine clutch, no clutch pedal, no gear clash! Clark's power-shift transmission is standard equipment on the new 15 cu. ft. Michigan Tractor Shovel—completely eliminates this notorious cause of excessive maintenance and down-time.

**Instant power-shifting.** In place of the conventional gear-shift levers and clutch pedal, the Michigan has a single power-shift lever on the steering column. You can make any shift instantly, even when moving: simply push the lever to High, Low or Reverse position. As any operator will tell you, *it sure beats riding a heavy clutch all day.*

**Faster cycles.** There's no hesitation, no gear clash, no loss of momentum when you shift—saving seconds or minutes on every cycle.

Power-shifting also makes the Model 12B more maneuverable in boxcars and narrow aisles, since you don't have to fumble with conventional levers and clutch pedal.

**Heavier, more power.** The new Michigan is 20% heavier and more powerful than most machines in its class. With this margin of weight and power, plus low-level independent bucket action, the 12B *digs* where other machines spin their wheels.

**See it in action.** The complete power train of the new 12B—power-

shift transmission, 3-to-1 torque converter and planetary wheel axle—is designed and manufactured by Clark, specifically for the roughest kind of industrial bulk handling. Complete dust protection features are standard; gas or diesel optional. See the new 12B in action, on your own job—write us to arrange a demonstration.

**The new Michigan 12B is available on Clark's no-down-payment Lease Plan; clip this coupon to your letterhead and mail it for details.**

Michigan is a trade-mark of

**CLARK  
EQUIPMENT**

*Arrange demonstration of Model 12B:*

**CLARK EQUIPMENT COMPANY**  
Construction Machinery Division  
2461 Pipestone Road  
Benton Harbor 4, Michigan

## A Package Deal...



### Custom Formulated MINERAL MIXTURE

Tennessee Corporation custom formulated mineral mixtures are tailored to fit your particular needs. We custom mix any combination of minerals to your own specifications. There is only one ingredient to add to your regular fertilizer formula to produce a completely balanced plant food. It requires no additional labor or mixing facilities, since TC mineral mixtures come to your plant in bulk or bag already mixed in controlled amounts of soluble and readily available forms of Copper, Manganese, Zinc, Iron, Magnesium and Boron. Cut down on multiple purchasing, raw material cost and handling by mineralizing with a TC custom formulated mineral mixture.

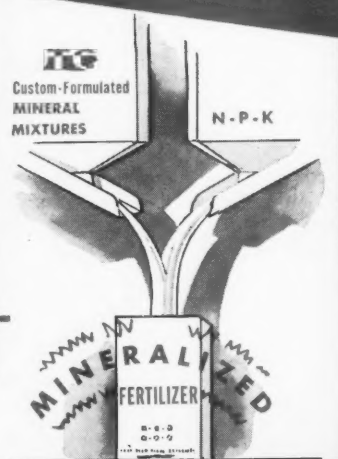
*Samples, Specifications and  
Detailed Information Upon Request.*

TENNESSEE



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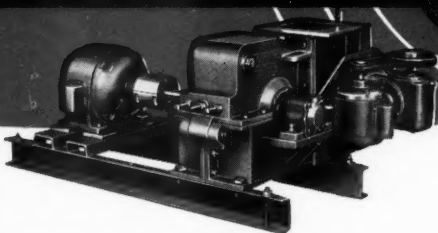
617-629 Grant Building, Atlanta, Ga.





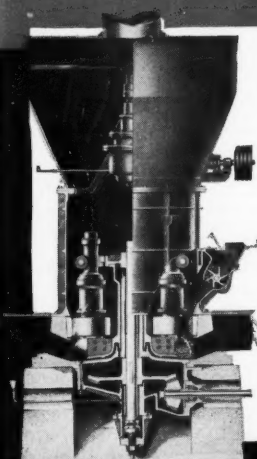
### HAMMER MILLS

A size for every purpose! Williams Hammer Mills are designed to do the complete job in a single operation. No primary or secondary crushers required—extra foundations, conveyors, other expensive equipment are eliminated—thus saving as much as 75% on initial investment and up to 50% on grinding costs!



### HELIX-SEAL HAMMER MILLS

Combines the advantages of a hammer mill with screw-type feed to obtain finenesses from 100 to 325 mesh. For dustless, cleaner, safer dry grinding—accurate, non-clogging reduction of sticky and wet materials. Eliminates separators, fans and cyclones. Furnished with water or steam jackets.



### ROLLER MILLS WITH AIR SEPARATION

Pulverizes and blends with exceptional accuracy down to 400 mesh or micron size. Dries as it grinds. Instant size adjustment—automatic self-adjusting feed—many other exclusive features that mean improved quality and output.

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### GRINDING, CRUSHING, SEPARATING PROBLEMS

Whether your job demands crushing power shovel-loaded stone to 8 mesh or smaller in a single operation—whether it is pulverizing or blending, with or without air separation, of limestone or insecticides to finenesses down to 400 mesh, or even micron sizes—whether it is closed-circuit dustless dry grinding, or the grinding of wet and sticky materials to 325 mesh—there is a Williams "proved-in service" machine that can give you **A BETTER PRODUCT—FASTER PRODUCTION—and LOWER COSTS.**

It will pay you to get the facts about Williams equipment, and learn what it can do for your specific operation. Write Today For Literature.

### Send Us Your Questions

Complete testing and research facilities are maintained by Williams to develop the **right answers**, especially for your operation, on every size reduction problem. Write for information and the help of an experienced Williams technician.

#### OTHER WILLIAMS EQUIPMENT

- Drier and Impact Mills
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# WILLIAMS

**CRUSHERS**

**GRINDERS**

**SHREDDERS**

OLDEST AND LARGEST BUILDER OF HAMMER MILLS IN THE WORLD





# Construction

## Parathion Facilities For AP&C Eston Plant

American Potash and Chemical Corp. is building facilities for the manufacture of technical parathion at its Eston Chemicals plant in Los Angeles (Vernon), Calif.

Output of the new facilities, scheduled on stream early this year, will be solely for the company's needs and for the western requirements of California Spray Chemical Corp. AP&C currently fills its parathion needs from outside sources.

## Capacity Increased At Greek Factory

In Greece, Hellenic Co. of Chemical Products & Fertilizers Ltd. (Oxea) has increased plant food output at their Piraeus plant from 60 to 100 tons per day. A new Dorr-Oliver 100 ton plant presently producing ammonium phosphate but designed to manufacture either this material or triple superphosphate, has replaced the former triple super installation.

Uncalcined Gafsa phosphate, imported from Tunisia, is used at Piraeus. Dorrco strong phosphoric acid, phosphoric evaporation, and granular fertilizer processes are utilized.

## New Laboratory for Davison Chemical

A new laboratory for Davison Chemical Co. on a site midway between Baltimore and Washington is scheduled for completion this year. The three story building will include about 52,000 square feet and will be staffed by 160 persons.

Process engineering research will continue at Davison's Curtis Bay Works in Baltimore, center for most present research activities. Departments of the W. R.

Grace division that will be transferred to the new facilities include research management, new products development and chemical, agricultural, catalyst and nuclear research.

## Columbia-Southern Adds Research Bldg.

Plans for expansion of research and development work at the Barberton, Ohio, plant of Columbia-Southern Chemical Corp. include construction of an ultra-modern research building. Now being erected by Heller-Murray Co., the structure will provide 40,000 square feet of floor space with three floors plus basement. Facilities will include a small "hot" laboratory for radioactive experiments.

## Phillips Pacific NH<sub>3</sub> Plant in SE Wash.

This spring, Phillips Pacific Chemical Co. will begin construction of an ammonia plant on a 200-acre site in the Tri-Cities area of southeastern Washington, according to K. S. Adams, chairman of Phillips Petroleum, and Ray C. Fish, chairman of Pacific Northwest Pipeline Co., companies jointly owning the Pacific firm.

Scheduled for completion late this year, the plant will be located seven miles southeast of Kennewick on the west bank of the Columbia river, near Finley. It will use natural gas supplied by PNP to produce 200 tons anhydrous ammonia daily.

Phillips Chemical Co. will operate the plant and marketing to distributors will be handled by the parent company, Phillips Petroleum. Sales offices serving the Intermountain, Inland Empire and Pacific Northwest regions are located in Spokane and Salt Lake City.

Architectural designs and purchase of equipment and materials has already been started by Fish Engineering Corp. and the facilities will be constructed by Hydrocarbon Construction Corp.

## New V-C Rochester Plant, Sales Office

Virginia-Carolina Chem. Corp. has installed complete mixing facilities at its Rochester, N. Y. location and has enlarged and improved shipping facilities. Operations were scheduled to begin on January 1.

Both the plant and a new fertilizer sales office are located at Lytell Ave. and Barge Canal, V-C's base of operations in western New York for the last 20 years.

Rochester will serve farmers and dealers in New York and in northern Pennsylvania, the northern half of a territory formerly covered by the V-C Carteret, N. J. plant. Carteret operations were scheduled to be discontinued on the first of this month.

Sales and shipments in the former Carteret southern territory will be handled from Baltimore.

E. Earle Lacy heads the new sales unit and Hugh M. Griffith



Griffith



Lacy

has been named factory superintendent. Lacy was assistant sales manager and Griffith assistant superintendent at Carteret.



Mulroney

Much of the development of the Rochester area for V-C fertilizers is credited to John J. Mulroney who joined the firm as a western New York salesman in 1914.

According to the V-C NEWS, establishment of the new plant represents for Mulroney a long-awaited event.

FARM CHEMICALS



# Half-Yard Loader Scoots Around in Boxcar

**Compact Tractomotive TL-6 Tracto-Loader  
is High Producer in Confined Areas**



## **Feeds Conveyor From Inside Boxcar**

TL-6 Tracto-Loader moves bulk material from a boxcar to a conveyor set up just outside car door. This 33.7 hp loader has a full half-yard bucket, yet it can scoot around in this confined area, make right-angle turns without jockeying.

Here is a real production booster where work space is limited. The TL-6 is ideal for unloading boxcars, traveling through narrow aisles and doorways, making hairpin turns near columns and posts. Has short, 6½-ft turning radius . . . over-all length only 9 ft, 7 in., width 4 ft, 5 in.

You get big loads fast and you carry them low. Torque converter drive eliminates engine stalling . . . crowding is positive and smooth. Bucket has scooping action — tips back 22° at floor level. Reaches carry position, 50° tip-back, at only 3 ft above floor — means easier maneuvering, greater stability, better visibility.

As for ease of handling, operators say it's the best yet. Forward and reverse are controlled by a single, smooth-working lever — no gear shifting necessary. Reverse is twice as fast as forward — lets you get away from the pile "on the double."

Ask your Allis-Chalmers Construction Machinery Dealer to show you the TL-6 or the two larger Tracto-Loaders in action.



## **For bigger, tougher jobs, see the Tractomotive TL-10 Tracto-Loader**

— the industrial wheel loader that proved the soundness of Tracto-Loader design. It set new standards in loader performance with a combination of hydraulic torque converter drive and clutch-type transmission. Has 63-brake hp, 1-cu-yd Tip-Back Bucket. Various interchangeable attachments.

**write for free catalog** ▶

# **TRACTOMOTIVE**

**TRACTOMOTIVE CORPORATION**

**Deerfield, Illinois**

### **TRACTOMOTIVE CORPORATION**

Deerfield, Illinois, Dept. FC

- ☐ Please send new Tractor-Loader Catalog
- ☐ Have salesman call

Name .....  
Title .....  
Company .....  
City ..... State .....



## Davison Increases Perry, Ia. Plant

Capacity of Davison Chemical Co.'s Perry, Iowa fertilizer plant has been increased by 50 per cent through new facilities installed at a cost of nearly \$300,000.

Production of a superior granulated fertilizer is now possible, according to Harold Clayton, manager of the plant, along with extension of grades to such high analysis materials as 15-15-15.

The plant warehouse has been extended, a new loading dock installed and the main production building has been completely revamped to accommodate new equipment including a huge granulation unit.

## Calspray Storage, Office Contracts

California Spray-Chemical Corp. has awarded a contract for construction of a bulk storage warehouse at the Richmond, Calif., plant. Designed by Simpson and Stratta, it will be about 580 feet by 80 feet in area and will have a ceiling height of 50 feet.

Approximately 500 feet of the structure will be used to store various pelletized fertilizers and ammonium sulfate; the remaining area will house bagging and shipping facilities. It will utilize corrugated asbestos cement board roofing and siding on a structural steel frame.

Office facilities and a change room for the Calspray fertilizer plant, now under construction, will be erected under a contract awarded to the F. P. Lathrop Co.

## Expand Southern Rhodesia Factory

In Southern Rhodesia, a \$9 million expansion plan was announced for a fertilizer plant near Salisbury, operated by African Explosives & Chemical Industries (Rhodesia) Ltd. Imported and native raw materials will be used to produce some 150,000 annual tons of superphosphate.

## PEOPLE

### American Potash & Chemical Corp.



Francis

W. J. F. Francis has been named vice president in charge of sales. General sales manager, western, since 1952, he went to the organization from Pennsylvania Salt Mfg. Co. and was previously with California Spray-Chemical Corp. His offices will continue to be in Los Angeles.

Also announced was appointment of William Clines to western sales manager, and Paul E. McCoy to the firm's Sales Development Dept.

William J. Murphy, 60, vice president in charge of sales and a director of AP&C, died of a heart attack Dec. 11 at Glen Ridge (N. J.) Hospital.

### American Potash Institute.

In January, E. T. York, Jr., assumed managementship of the Northeast territory for the institute, with headquarters in Washington, D. C., succeeding S. D. Gray, who has retired. From 1949-52, he was associate professor, N. C. State College; professor 1952-53; and head of the Department of Agronomy from 1953-55.



York

### Armour Fertilizer Works.

Transfer of F. L. Wooten, Jr. from Wilmington, N. C., to the company's general office in Atlanta as unit sales manager recently was announced. Wooten

began his career with Armour in the Wilmington office, later acted as assistant manager of the Houston, Tex., Div., and returned to Wilmington as division manager three years ago. In his new capacity, he will supervise sales activities in most of the Southeastern states.

### Carbide & Carbon Chemicals Corp.

Honorary membership in the American Institute of Chemists was conferred upon Harry B. McClure, company president, at a dinner meeting Jan. 12 at the Commodore Hotel, New York.

### Chilean Nitrate Sales Corp.

H. S. Gordon, Jr., has been named district manager of the Jackson, Miss., office.

### Chipman Chemical Co.

Former district manager Blanchard J. Smith has been named a vice president and director of the firm. In his new post Smith will be in charge of the Sales and Traffic Depts.

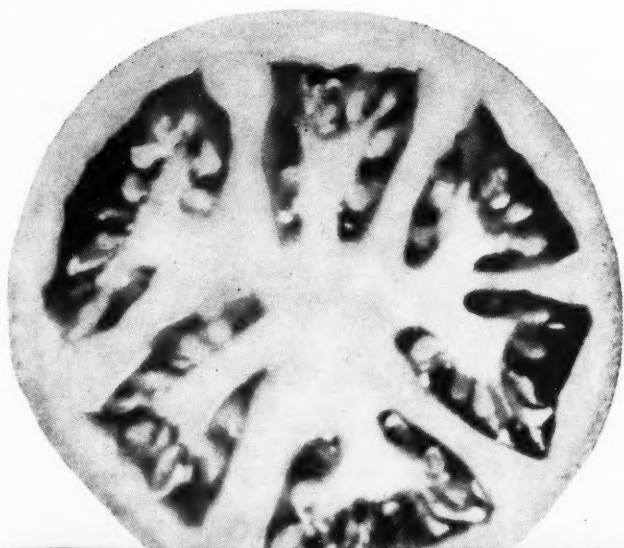
Other Chipman changes include transfer of Linden E. Harris to Bound Brook as director of herbicide research and technical service; retirement of Frank J. Seibert as chief chemist and plant superintendent; and return of C. A. F. Holstein to the firm as production manager.

### Columbia-Southern Chemical Corp.

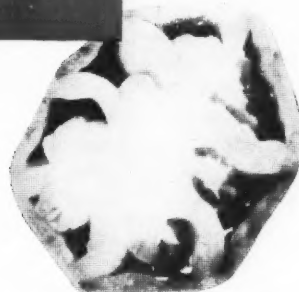
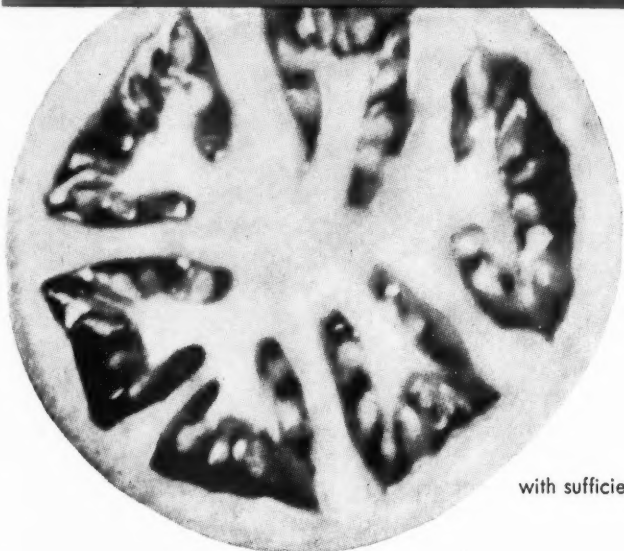
Chris F. Bingham, former director of sales, succeeds W. I. Galliher, who retired on Dec. 31 as vice president—sales. H. W. Geichert has been named vice president—market research and development; W. F. Newton—director of sales; and P. A. Fodor, Jr., assistant director of sales.

### Commercial Solvents Corp.

Marion E. Tislow has joined the Market Development Dept., Technical Service Section, with offices at Terre Haute, Ind.



## IN TOMATOES, POTASH-ENRICHED FERTILIZERS MAKE THE DIFFERENCE



without sufficient potash

with sufficient potash

Balanced fertilizers are essential to the maintenance of rich soil needed to grow healthy, vigorous, profitable crops. Potash is an indispensable partner in these balanced fertilizers, because it promotes plant resistance to disease, while increasing both the yield and the quality.

U. S. P.'s high grade muriate of potash has the highest  $K_2O$  content and is free-flowing and

non-caking—important advantages in the production of the balanced fertilizers which help American farmers to better crops and better incomes.



HIGRADE MURIATE OF POTASH 62/63%  $K_2O$   
GRANULAR MURIATE OF POTASH 60%  $K_2O$  MIN.

**UNITED STATES  
POTASH COMPANY**  
INCORPORATED

30 Rockefeller Plaza, New York 20, N. Y.

Southern Sales Office  
Rhodes-Haverty Building, Atlanta, Georgia

REG. U.S. PAT. OFF.

## ... People

**Davison Chemical Co.** In further expansion of the Petroleum Catalyst Dept., W. L. Banks has been named sales representative, to service customers in the Houston area.

**Diamond Alkali Co.** Newly appointed assistant manager of public relations and advertising is Thomas E. Kuby.

Two new members recently were elected to the board of directors, John W. Reavis, a Cleveland attorney, and Wilbur H. Evans, a Diamond Alkali Co. vice president.

**Food Machinery and Chem. Corp.,** Chemical Divs. Robert L. McEwen has been appointed coordinator of management recruitment and placement. Other recent appointments include Joseph Green to central research lab; John Rivoire to Development Dept., Westvaco Mineral Products Div.; and R. M. Hoyer to district sales manager, Westvaco Chlor-Alkali Div.

**DuPont Co.** Dr. E. D. Ries, general manager, Polychemicals Dept., has retired and is succeeded by Robert L. Hershey.

**W. R. Grace & Co.** G. C. Heldrich, Sr. is named technical service director of Grace Chem. Res. & Devel. Co. Div.



McCallum

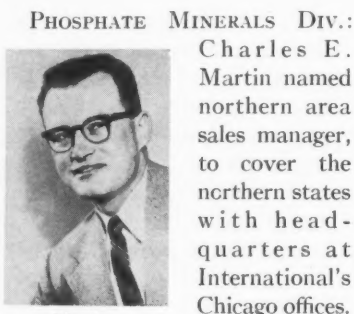
Huber, Ga., he will represent the Industrial Prod-

ucts Dept. in its sales of clays, chemicals and carbon blacks to the pesticides and other industries.

**Insect Control & Research, Inc.** Dr. Joseph R. Haun, former plant physiologist for weed control research with DuPont's Grasselli Chem. Dept., will become director of the newly established Weed Control Div. of Insect Control & Research, consulting entomologists.

**International Minerals & Chemical Corp.** appointments: PHOSPHATE CHEMICALS DIV.: Bryce L. Rhodes named development and production staff manager, responsible for development and promotion of new products and by-products, production planning and studies of current operations for the division.

James F. Roe promoted to manager of Florida operations and Charles A. White advanced to manager of the division's Tennessee operations.



Martin

He has been a sales representative in the mid-west district.

Dr. E. T. Casler promoted to manager of Florida operations; W. O. McClintock to assistant manager for engineering; F. J. Clawson to chief metallurgist; H. T. Loehr transferred to assistant manager for production; H. E. Uhland to chief engineer; and R. B. Fuller to special consultant. All will locate in Florida.

PLANT FOOD DIV.: C. B. Brisendene appointed to the marketing



Brisendene

staff as advertising and promotion supervisor, with staff responsibility for directing the division's advertising and promotion program, reporting to G. J. Carney, marketing staff manager.

**Klau-Van Pietersom-Dunlap.** Donald D. Dilworth, vice president, has been named to head up the Agricultural Div. as part of the agency's internal move to streamline its operations and provide closer management supervision through use of specialists.

Three vice presidents named to head up the other divisions are Burton E. Hotvedt, industrial; Noel Turner, general; and Victor A. Lawrence, public utility.

**Nitrogen Div., Allied Chemical & Dye Corp.** Malcolm E. Hunter has been appointed a vice president of the division. He will continue to be in charge of sales, a function which he formerly performed as assistant to the president.

**Olin Mathieson Chemical Corp.** New western manager of the Insecticides Div. is J. Newton Hall, a former sales vice president of Julius Hyman & Co. and president of Pioneer Chemical Associates. Hall's headquarters will be in Denver, Colo.



Hall

**Pennsylvania Salt Mfg. Co.** E. K. Dietrich is new St. Louis sales-service representative for the B-K Dept.





# Horse & Lion POWER ... HORSE & LION NITROGEN FERTILIZERS

All crops need  
nitrogen. When they  
do ...

SELL

**HORSE & LION  
NITROGEN FERTILIZERS**

Produced by a century-old chemical pioneer and leader, "Horse & Lion" nitrogen fertilizers are successfully used around the world. "Horse & Lion" nitrogen power for crop growth is *proven*. "Horse & Lion" nitrogens will prove successful for you and your trade. *Be sure with "Horse & Lion" power.* There are five "Horse & Lion" nitrogen fertilizers for various requirements:

"Horse & Lion" Calcium Nitrate: 15½% pure nitrogen, combined with about 28% available lime. Granulated.

"Horse & Lion" Calcium Ammonium Nitrate: 20½% pure nitrogen (10¼% nitric and 10¼% ammoniac nitrogen) and approximately 33% calcium carbonate. Granulated.

"Horse & Lion" Ammonium Sulphate Nitrate: 26% pure nitrogen (11% nitric and 15% ammoniac nitrogen). Granulated.

"Horse & Lion Urea 44": 44% pure nitrogen. Coated pellets for dry use.

"Horse & Lion Urea 46": 46% pure nitrogen. Pellets without coating for liquid application or dry use where fast dissolving is desired.



For complete information and prices, contact your nearest "HORSE & LION" fertilizer headquarters.

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## ... People

**Philipp Brothers Chemicals, Inc.** John H. Kraus joins the firm as administrative assistant in the Agricultural Division.

**Pittsburgh Plate Glass Co.** Clarence M. Brown, chairman of the board of directors, announced his retirement at a recent board meeting in New York City. Harry B. Higgins, president, succeeds him as chairman, and David G. Hill was elected president.

**Richmond Guano Co.** The board of directors recently named L. Dudley George vice president; William B. Badenöch, Jr., secretary and Robert A. Bell, treasurer.

W. E. Barret continues as president.

**Shea Chemical Corp.** Paul A. Vogel has been named director of commercial research, with offices in New York. Since 1950 Vogel directed market research activities for General Chemical Div., Allied Chem. & Dye Corp. and more recently also acted as market research director for National Aniline Div.

**Sinclair Chemicals, Inc.** John A. Corrigan, former sales representative in Chicago, has been named district sales manager, to head the company's marketing activities in the Midwest with headquarters in Chicago.

Anton M. Horehled has been named manager of nitrogen product sales to direct Sinclair's sales of anhydrous ammonia and nitrogen solutions from the Calumet Nitrogen Products plant at Hammond, Ind.



Horehled

**Tennessee Corp.** Milton A. Caine, 73, director and executive vice president, died Dec. 25 in New Rochelle, N. Y.

**Texas Farm Products Co.** Leon Brownfield has assumed his duties as fertilizer production manager for both Lone Star Phosphate Co. and Texas Farm Product's Co.'s new high analysis pelleted fertilizer



Brownfield

plant now under construction. He had been plant engineer for Farm Belt Fert. and Chem. Co. and process engineer for Phillips Petroleum Co.

**Velsicol Chemical Corp.** James Wirwille has joined the agricultural chemicals sales staff. Previously he had been technical sales representative for Pennsalt and on the staff of the USDA, Plant Hormone Div. He will represent Velsicol in Ohio, Michigan, Kentucky, West Virginia, Western New York and Eastern Ontario, Can.



Wirwille

## Calendar

**Feb. 6.** Tennessee Seedmen's Assn., Andrew Jackson Hotel, Nashville.

**Feb. 6-8.** Agronomy Section, Assn. of Southern Agr. Workers, Biltmore Hotel, Atlanta, Ga.

**Feb. 6-8.** Cotton States Branch, ESA, annual meeting, Biltmore Hotel, Atlanta, Ga.

**Feb. 7-9.** N. Y. Garden Supply Trade Show, Kingsbridge Armory, New York City.

**Feb. 9-10.** 11th annual Wyoming Weed and Pest Control conf., Fremont County Fair Grounds, Riverton.

**Feb. 15-16.** Annual Crops, Soils & Fertilizer conf., Student Union, Oklahoma A&M College, Stillwater.

**Feb. 15-17.** Calif. Weed Control conf., Sacramento & Davis, Calif.

**Feb. 15-17.** Western Weed Control conf., Sacramento & Davis, Calif.

**Feb. 16-17.** Middle West Soil Improvement Committee annual joint meeting of agronomists and fertilizer industry, Edgewater Beach Hotel, Chicago.

**Feb. 18-20.** Annual Pacific Northwest Agricultural Chemical Industry conf., Imperial & Benson Hotels, Portland, Ore.

**Feb. 20-21.** Southwestern Branch,

Entomological Society of America, Ft. Worth, Tex.

**Feb. 22-24.** Ohio-Ind. conf. on Agricultural Aviation, Ohio State Univ., Columbus, O.

**Feb. 22-24.** Alabama Plant Pest Control conf., Alabama Polytechnic Institute, Auburn.

**Feb. 28-29.** Fifth annual Pesticide School, Clemson House, Clemson, S. C.

**March 6-7.** Western Cotton Production conf., Fresno Hacienda, Fresno, Calif.

**March 14-18.** National Agric'l Chemicals Assn., spring meeting, Hollywood Beach Hotel, Hollywood, Fla.

**March 28-30.** North Central Branch, ESA, Purdue Memorial Union, Lafayette, Ind.

**April 10-12.** 21st annual conf. of Council for Agricultural and Chemurgic Research, Congress Hotel, Chicago.

**April 11-12.** Insect and Rodent Control Conf. for Sanitarians, Purdue University, Lafayette, Ind.

**May 16-18.** Synthetic Organic Chemical Manufacturers Assn. annual outing, Skytop, Pa.

**June 10-13.** National Plant Food Institute Convention, The Greenbrier, White Sulphur Springs, W. Va.







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## GOVERNMENT

### TVA Reports on Fertilizer Output

TVA last year produced about 350,000 tons of major nitrogen and phosphate fertilizers at its Muscle Shoals plant, according to its annual report to the President and Congress. Most of the material was distributed in 35 states through the experimental sales program. The report said that increased demand for concentrated superphosphate has caused private industry to nearly double its capacity in the past five years. TVA is sharply curtailing its production of this material.

The value of another product, fused tricalcium phosphate, also has been established, the report stated, and TVA, therefore, has discontinued manufacture of the material and sold the plant in which it was developed.

In the fiscal year, TVA reports its production and distribution amounted to about 1½ per cent of total tonnage of fertilizers used in the US during the 1953-54 crop year.

### Fruit, Nut Advisors Cite Research Needs

Expanded work on virus diseases and on control of nematodes were considered the most urgent of several high-priority research needs in the field of fruit and nut crops by USDA's Deciduous Fruit and Tree Nut Research and Marketing Advisory Committee at its annual meeting in Washington, Jan. 9-12.

Also cited by the committee among the top needs for fruit and nut research was expanded research on insects as carriers of virus diseases, research to determine the residues of pesticide chemicals in or on fruits and soils and their effect on product qual-

ity, and further investigations of the cause and control of diseases that attack fruits during storage and marketing.

### Popham Succeeds Hoyt



Popham



Hoyt

W. L. Popham, who has been in charge of USDA's plant pest control work since 1941, succeeds Avery S. Hoyt as director of regulatory work on crops in the Agricultural Research Service, USDA.

Dr. Hoyt retired on Dec. 31 after 25 years as a top administrator of entomological research and plant pest control activities in USDA.

### Quotas Approved On Upland Cotton

Final results of the national referendum held in December on marketing quotas for the 1956 crop of upland cotton show that 93 per cent of the farmers voting approved the quotas, USDA reports. The official tabulation shows that of the 292,488 growers voting, 271,887 favored marketing quotas and 20,601 opposed them.

### Farm Goods Slated For Relief Agencies

Wheat, corn, rice and dry beans will be made immediately available to U. S. charitable agencies for foreign relief purposes and also to eligible domestic outlets, Agri-

culture Secretary Ezra Taft Benson recently announced.

Distribution will be made through U. S. welfare agencies, 18 of which are currently distributing food in 67 countries abroad. The program will continue in effect until such a time as any or all of the commodities can be disposed of in normal domestic channels or until they can be sold abroad.

### McConnell Resigns As Asst. Ag. Secty.

The resignation of James A. McConnell as assistant secretary of agriculture was announced by the White House late in December. McConnell served as administrator of the Commodity Stabilization Service from February, 1954, and was appointed assistant secretary in January, 1955. He will continue with the department as a consultant.

### P. M. Koger Named ACP Administrator

Agriculture Secretary Ezra Taft Benson has announced appointment of Paul M. Koger of Tennessee as administrator of the Agricultural Conservation Program Service of USDA.

Koger moves up from area director, Southeast area, Commodity Stabilization Service. He previously was administrative officer of the Tennessee State Agricultural Stabilization and Conservation Committee.

### Burgess Now Chief Of Plant Pest Unit

Newly appointed chief of the Plant Pest Control Branch of USDA is Emory D. Burgess, former assistant chief of plant pest control work.

A USDA employee since 1924, his early work for the department was in control of the gypsy moth, and he was associated with the state of New York for a short time on Dutch elm disease control.



## "The hands unload them rough"

—says Fred Schroer, Jr. of Valdosta, Ga.

"I've never seen a thread give under this pounding and believe me, if they weren't tough burlap bags, we'd have a heavy loss over the years from waste."

Fred should know. He and his brother, Herbert, now run the 1200-acre farm of their father, Fred W. Schroer, retired Master Farmer and pioneer in the modern agricultural age of South Georgia. Mr. Schroer says he's been using burlap bags since 1912 and, "During the years, I've had less trouble with burlap bags than any one thing I use. First thing I did this year was put in our fertilizer order—in burlap bags, of course. You can't beat them—no matter how you try or what you use."

That's a strong statement from such an outstanding farmer, but typical of what farmers all over the country tell us. Burlap bags are preferred by farmers.

**Just ask your own customers—  
they'll tell you that burlap**



**Is strong** — takes dragging, dropping, man-handling — any tough job on the farm.



**Gives good ventilation** — keeps farm supplies and products fresh.



**Laughs at sudden showers** — wetness or dampness can't weaken it.



**Saves money** — extra value from re-sale and re-use.



**Saves storage space** — stacks to any height without slipping.



**Has 1000 uses** — always in demand on the farm (popular with farm wives, too!)

**THE BURLAP COUNCIL**

of the Indian Jute Mills Association

155 East 44th Street, New York 17, N. Y.

## Associations & Meetings

### Radio Safety Talks Released by NAC

Transcriptions of four talks by experts on pesticide safety are now being released by the National Agricultural Chemicals Association to radio farm directors and program directors throughout the US.

Speakers and their transcribed talks are Maynard H. Coe, National Safety Council—"Farm Safety in the Chemical Era;" Dr. David E. Price, Public Health Service, U. S. Dept. of Health, Education and Welfare—"How Safe are Today's Pesticides?"; Dr. A. L. Miller, U. S. Representative from Nebraska, "The New Law and You;" and L. S. Hitchner, NAC executive secretary—"It's On The Label."

This transcription is the first of a new series of radio platters being prepared by the association in a program to improve public understanding of pesticides, and to provide information about the increasing number of new uses for pesticides and their benefits to agriculture and the general public. Each talk runs about three-and-one-half minutes.

### Nat'l. N Solutions Assn. Membership

The National Nitrogen Solutions Association is open to new members, reports W. Harold Schelm, chairman of the Membership Committee.

Citing the benefits of NNSA membership, Schelm says it "assures you of knowing what is going on." The association publication includes data to help customers get greater net income by N usage; reach new customers and increase sales; obtain up-to-date information concerning application, transport and storage equipment, and meet the nitrogen needs

of crops as well as promotion of other plant foods, to get maximum acre income for customers.

For an application blank, write to W. Harold Schelm, c/o Schelm Brothers, Inc., 201 Anna St., East Peoria, Ill.

### NPFI Staffer



Lee Conahan, who succeeds Peter C. Crolius as editorial assistant for the National Plant Food Institute. A graduate of South Dakota State College, he has been advertising manager of Brookings REGISTER.

### MCA Adds Three New Committees

In an expansion of its activities, Manufacturing Chemists' Association has named three new committees—Atomic Energy, Education Advisory and Mechanical Technical—bringing to 24 the number of technical and functional committees of the association.

D. C. Brand of Monsanto Chemical Co. has been named chairman of the Mechanical Technical committee, Bromwell Ault of Interchemical Corp. for the Education Advisory committee and Dr. R. C. Swain of American

Cyanamid Co. will serve as acting chairman of the Atomic Energy committee.

### Agronomy-Industry Meet Set for Feb.

Reports on the latest research to promote more efficient fertilizer use will headline the program for the annual joint meeting of Midwestern college agronomists and fertilizer industry representatives. An attendance of more than 500 is expected at the meeting, to be held at the Edgewater Beach Hotel in Chicago on Feb. 16 and 17.

Sponsored by the Middle West Soil Improvement Committee, the program includes special reports by soils specialists from Kentucky, Illinois, Minnesota and Nebraska.

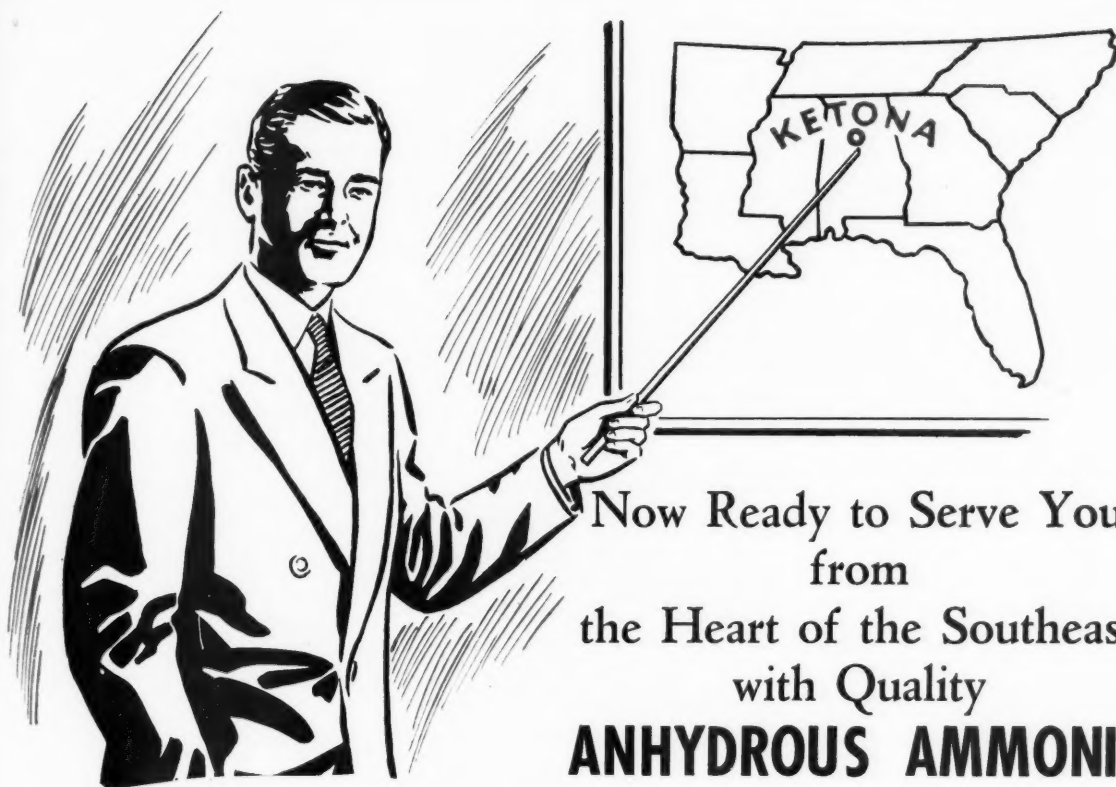
Chairman is Dr. Kermit C. Berger, University of Wisconsin. MWSIC president W. M. Newman and executive secretary Z. H. Beers will welcome the soils men and visitors.

Speakers and their topics include Joseph M. Bohlen and George M. Beal, Iowa State College—"How Farm People Accept New Ideas;" J. W. Apple, Univ. of Illinois—"The Response of Crops to Soil Insecticides;" Dr. Russell Coleman, National Plant Food Institute—"The Changing Fertilizer Picture and Its Implications;" Dr. Earl R. Swanson, Univ. of Illinois—"Farm Planning for Top Profits;" and a representative of Velsicol Chemical Corp. will discuss "New Developments in Soil Insecticides."

A fertilizer mechanical meeting is planned for Friday afternoon, designed primarily to give implement industry engineers an opportunity to obtain information that will help them plan and design fertilizer application equipment best suited to farm needs. A panel discussion is planned, with a question and answer period to give engineers first hand facts.

FARM CHEMICALS





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**ANHYDROUS AMMONIA**

Our modern plant at Ketona, Ala., is now on stream producing quality anhydrous ammonia in commercial and refrigeration grades. Additional facilities to meet your requirements for nitrogen solutions of all popular formulations will also soon be completed.

Our new facility is the first commercial ammonia plant east of the banks of the Mississippi River and south of Virginia and the first in the nation to be based entirely on coke oven gas. You will find it a dependable and economical source of supply.

Our strategic location in the geographic center of the Southeast enables us to serve many customers more expeditiously and at a substantial savings in delivery costs. Responsible joint ownership by two large, nationally known companies—Hercules Powder Company, Wilmington, Del., and Alabama By-Products Corporation, Birmingham, Ala.—assures maintenance of highest quality standards.

We appreciate the many orders that have been placed with us, even in advance of our plant's opening, and invite your inquiries. Phone, wire or write Alabama By-Products Corporation, Sales Agents, P. O. Box 354, Birmingham, Ala., Phone 7-5171.

**KETONA**

**Chemical  
CORPORATION**

## **SCPFES Meeting Dates Announced**

The South Carolina Plant Food Educational Society last month held district meetings in Clemson, Columbia, Florence and Holly Hill, S. C.

Activities scheduled for the future include the annual Corn Contest Luncheon at the Jefferson Hotel, Columbia, on Feb. 15, where winners of the state wide society sponsored corn contest will be announced; and the annual fall convention at the Clemson House, Clemson, on Thursday, Sept. 6.

## **Spencer Sponsors Auction and Games**

Delegates attending the Georgia Plant Food Educational Society and Ga. Section, American Society of Agronomy meetings, were guests of Spencer Chemical Co. at an Auction Sale and Monte Carlo Games on Jan. 17.

Gifts for the auction were contributed by fertilizer companies and attractive and useful gifts were "sold" to the highest bidder for "cash," a million dollars of which was presented to each visitor. Twelve prizes were awarded by Spencer to winners of the Monte Carlo games.

## **Lederer Named to NCC Wash. Post**

The National Cotton Council has appointed Robert F. Lederer assistant to J. Banks Young, its Washington representative. Lederer has been a member of the NCC staff since June, 1953, when he joined the Technical Dept. of the Utilization Research Div.

## **Two Safety Data Sheets from MCA**

Two new safety data sheets, on hydrogen peroxide (SD-53) and naphthalene (SD-58), have been

published by the Manufacturing Chemists' Association.

Part of a continuing series, the data sheets give properties and essential information for safe handling and use of the chemicals, including material on shipping containers, storage, waste disposal and health hazards and their control.

Copies may be obtained from MCA, 1625 Eye Street, N. W., Washington 6, D. C., at 30 cents each.

## **ACS Fert.-Soil Div. Elects '56 Officers**

Newly elected chairman for 1956 of the American Chemical Society's Div. of Fertilizer and Soil Chemistry is Dr. Grover L. Bridger, director of agricultural research, Davison Chemical Corp.

Stacy B. Randle, state chemist at the New Jersey Agricultural Experiment Station, was named vice-chairman; Dr. Kenneth G. Clark of the Fertilizer and Agricultural Lime Section, USDA, secretary; T. Joseph Bosman of Federal Chemical Co., representative on the national society's council; and John O. Hardesty of USDA's Plant Industry Station, alternate counselor.

## **CFA Cites Need For Ag. Tech. Men**

Letters calling attention to the growing shortage of qualified agronomists, entomologists, chemists and other technicians important to agricultural progress were written during January to the 237 instructors of vocational agriculture in the high schools and junior colleges of California by the California Fertilizer Association. The instructors were urged to use their influence upon promising students and their parents to assure the completion of their technical educations, concluding with the promise of CFA to assist in placing in the industry those who are qualified through education, aptitude and inclination.

## **SOCMA Adds New 'Creative' Award**

Creation of an annual award for Creative Work in Synthetic Organic Chemistry has been announced by the Synthetic Organic Chemical Mfrs. Association.

The first of its type, the award has been created to "recognize and encourage creative work in synthetic organic chemistry," and consists of \$1,000, a certificate and a gold medal. It will be administered by the American Chemical Society.

The committee which developed the plan for this award is comprised of Dr. Ernest M. May, Otto B. May, Inc., chairman; Dr. Alvin H. Tenney, Carbide & Carbon Chem. Co.; and Dr. August Merz, American Cyanamid Co.

## **NJVGA Convention Draws 400 Youths**

About 400 young men and women from over 20 states accompanied by state leaders, extension specialists and county agents, attended the recent National Junior Vegetable Growers Association Convention at the Jung Hotel in New Orleans, La.

Among the sponsors of the youth movement are the National Plant Food Institute and Olin Mathieson Chemical Corp.

## **Fertiliser Society Discusses Sampling**

"The Effect of Sampling on Fertilizer Analysis" was discussed by E. W. Schwehr at the general meeting of the Fertiliser Society (of England) on January 12 in the lecture hall of the Geological Society, Burlington House, Piccadilly, London.

## **Mulliken to CSMA**

Alfred A. Mulliken has joined the staff of the Chemical Specialties Manufacturers' Association as assistant secretary.

## Chemicals

### 34—Ketona NH<sub>3</sub>

Now on stream is the new Ketona Chemical NH<sub>3</sub> plant at Ketona, Ala., producing both commercial and refrigeration grade ammonia. The first in the world to be based entirely on coke oven gas, it is strategically located in the center of the Southeast, a location designed to provide top customer service at reduced delivery costs. Added facilities soon will be completed for production of a complete line of nitrogen solutions. For information from the sales agents, Alabama By-Products Corp.,

CIRCLE 34 ON SERVICE CARD

### 35—Vitrea

Vitrea urea from John Deere is available in 80 pound bags or in bulk, coated or uncoated. The company offers fast service on this 45 per cent N material, which is ideal for direct application and liquid or dry mixing. For information

CIRCLE 35 ON SERVICE CARD

### 36—Ammonia

NH<sub>3</sub> distributors have found most valuable the 48 page bulletin from Commercial Solvents that is a guidebook to uses, properties and handling of the material. If you haven't obtained a copy

CIRCLE 36 ON SERVICE CARD

### 37—Pelleted BHC

Your BHC grinding problems may be solved with Stauffer's new pellet form. The only such BHC material now on the market, it is also the only form available in 24-gamma isomer. The pellets are easy to handle, virtually dust free, store and measure easily and don't stick or cake. Stauffer says they grind up like fertilizer. The pellets are available for immediate shipment to all sections of the country. For complete information

CIRCLE 37 ON SERVICE CARD

### 38—Attacloy

Attacloy diluent and carrier, says Minerals & Chemicals Corp. of America, makes dry, free-flowing dust bases and wettable powders from common sticky, solid poisons. Its sorptibility gives you a top formulation when technicals vary or when temperature and humidity are at troublesome levels. For complete up-to-date technical literature formulators can

CIRCLE 38 ON SERVICE CARD

### 39—Toximul 600

For stability of chlorinated insecticides, Ninol Labs suggests Toximul 600 as the emulsifier to use. Developed to reduce hazards of lost emulsifiability when liquid sprays are carried over to a new season, it can be used at 3-4 per cent levels with toxaphene, aldrin, DDT, BHC, chlordane, endrin, heptachlor and others. It gives a flash slow-creaming emulsion that won't separate out during spraying. Formulators can get complete information

CIRCLE 39 ON SERVICE CARD

FREE INFORMATION to help you  
solve fertilizer, pesticide problems

## Reader Service

### 40—Pyroicide

A booklet for insecticide formulators on Dry Pyroicide has been issued by McLaughlin Gormley King. Discussing non toxic and low residue agricultural insecticide concentrates, it includes sections on storage and handling of Dry Pyroicide, diluents, compatibility, mixing, labeling, registration, packing, dosages and related information. Formulators only

CIRCLE 40 ON SERVICE CARD

### How to use the READER SERVICE CARD

- Circle number of literature you want.
- Print or type your name, position, company and address.
- Clip and mail the Service Card.

### 41—Heptachlor

Velsicol is planning a big 1956 heptachlor soil insect campaign designed to increase your profits. Ads in farm papers and spots on key radio stations will help to pre-sell the market and Velsicol provides tested "in-store" selling aids—jumbo displays, window banners, folders and ad mats. For details on the program

CIRCLE 41 ON SERVICE CARD

### 42—Pikes Peak

General Reduction's Pikes Peak absorbent clay is termed a top carrier or diluent that builds more quality into your product with lower operating costs and less production troubles. It offers a pH of 5, high absorption qualities and an extremely fine grind. The material is free flowing for quick, uniform impregnation. For technical details, formulators can

CIRCLE 42 ON SERVICE CARD

## Process Equipt.

### 43—RTR

Poulsen's RTR (Ready-to-Run) Uni-Blender plants can increase your per-hour production while reducing hand operations and maintenance costs of your fertilizer production. For a technical bulletin with information on their application to plant food output

CIRCLE 43 ON SERVICE CARD

### 44—Ammon.-Granulator

Edw. Renneburg & Sons produces a continuous combination ammoniator-granulator eliminating the need for individual units. According to the manufacturer it not only saves space but also costs less and reduces operating expenses. For literature and information

CIRCLE 44 ON SERVICE CARD

### 45—Ammonia Methods

Four basic routes to synthetic ammonia are described in an M. W. Kellogg booklet—steam methane reforming, catalytic partial oxidation, non-catalytic partial oxidation and low temperature feed gas separation. Included are flow diagrams of each type, a review of the four methods and an economic data sheet for the steam methane pressure reforming system.

CIRCLE 45 ON SERVICE CARD

### 46—Disc Roll Mill

The new Hardinge disc roll mill, displayed for the first time in the US at the Chem. Industries Exposition, is a roller-type unit based on the Loesche mill, developed in Germany. It is said to be particularly suited for grinding relatively soft materials such as phosphate rock, limestone, talc and clays. The Hardinge Gyrotor classifier has been applied to the mill with excellent results. For a descriptive catalog

CIRCLE 46 ON SERVICE CARD

#### 47—Granulators

Sturtevant Mill points to the rapidly expanding field of granulated fertilizers now adopted by a large number of progressive mixers. One installation handled by the company was conversion of the St. John, N. B., facilities of Canada Packers to granulated fertilizers. After 14 months the balance of orders at this plant had shifted to 70 per cent granular. For a bulletin on Sturtevant granulators

CIRCLE 47 ON SERVICE CARD

#### 48—B-K Plants

A new catalog outlines the design, engineering, construction and initial operation of process plants by the Blaw-Knox chemical plants div. It is designed to provide information on the scope of work undertaken by the division and includes photos of major projects. Both fertilizers and pesticides are included in the subject matter.

CIRCLE 48 ON SERVICE CARD

#### 49—Tank Train

Fruehauf's new 800 series steel transport truck tank and trailer, designed especially for operation in the Western states, is said to be lighter, stronger, lower and easier riding than the previous design. A descriptive pamphlet is available, illustrated by cut-away drawings showing construction of the units.

CIRCLE 49 ON SERVICE CARD

#### 50—Evaporators

Three types of Rodney Hunt evaporation equipment are described in a new folder. Included is information on the Turba-Film and Turba-Film Floating Blade evaporators and the Luwa spray dryer. Details of the second unit are presented for the first time. Materials which can be processed by this equipment include calcium nitrate, calcium phosphate, urea and formaldehyde-urea concentrate.

CIRCLE 50 ON SERVICE CARD

#### 51—PneuBin

PneuBin pulsating panels are produced by Gerotor May Corp. for safe and efficient mechanical material flow. The units mount on the inside of your present bins and operate from your regular air supply, inflating and deflating in regulated cycles displacing the bin contents to free flow. For a flow stoppage report and literature

CIRCLE 51 ON SERVICE CARD

### Packaging

#### 52—Hudson Supply

Hudson Bag & Paper stresses that complete integration from forest to plant make possible centralized and controlled scheduling of its multiwall sacks to assure on time delivery. For a copy of "What to Look for in a Dependable Source of Supply" and details on Hudson's guarantee

CIRCLE 52 ON SERVICE CARD

#### 53—Auger-Matic

Detailed information on Coddington Mfg.'s Auger-Matic bag packer is offered in a new brochure. Various models of the packer are available for use with a variety of materials, light and fluffy to coarse pellets, in filling multiwall valve bags. For a copy

CIRCLE 53 ON SERVICE CARD

### Application and Storage

#### 54-55—Cot-N-King

Finco's Cot-N-King high clearance sprayer is a brand new unit designed exclusively for use on cotton. The unit is equipped with adjustable boom, 8 or 14 HP engine, adjustable row spacing, full left or right 90° steering and tanks on both rear wheels for perfect balance. Up to 6½ ft. boom clearance is possible. For a free brochure

CIRCLE

custom sprayers..... 54  
interested in dealership..... 55

#### 56—RegO Valve

A new RegO liquid withdrawal valve from Bastian-Blessing, is designed for transferring liquid from nurse tanks to applicator tanks and features an exclusive pressure seal construction and integral excess flow check valve. For the complete RegO NH<sub>3</sub> equipment catalog

CIRCLE 56 ON SERVICE CARD

#### 57—Weatherhead Catalog

The Weatherhead Co. has introduced two new NH<sub>3</sub> valves, one designed to fill tanks at a rate of 65 gpm at 10 psi differential pressure and the other a 1" hose line shut-off. These and the other items in the Weatherhead line are described in a new catalog. For a copy distributors can

CIRCLE 57 ON SERVICE CARD

#### 58—A&D Spreaders

Fertilizer and lime spreaders from Adams & Doyle are now distributed on a national basis. The manufacturer says you spread more with these units because material is dropped directly into the eye of the fan. Fewer trips to the field are required and, according to A&D, maintenance costs are less. Spreaders are available in 7, 8, 10 and 12 foot sizes. For information

CIRCLE 58 ON SERVICE CARD

#### 59—Nitro-Lizer

Clark Nitro-Lizer applicators are available in 3, 4 or 5 row units with 122, 170 or 200 gallon tanks. They are easy to hook up, feature a simplified valve arrangement, patented self-cleaning knives and a float gauge located towards the front of the tank at a 45° angle for greater convenience. To obtain a catalog showing the complete line of applicators and accessories

CIRCLE 59 ON SERVICE CARD

#### 60—Ranger Wagons

A complete line of Ranger liquid fertilizer wagons and trailers is available from Prior Products. Features include a low center of gravity, Level-Load axle, perfect tracking and rugged construction. For the story on these Ranger units

CIRCLE 60 ON SERVICE CARD

#### 61—LiquiJectors

Dempster LiquiJectors are available in capacities from 60 to 300 gallons for application of NH<sub>3</sub> or solutions. New to the line is a 3-point hitch hydraulic lift unit which covers up to 14 feet and a semi-mounted LiquiJector with metering pump. The Dempster equipment is described in a new booklet. To get a copy

CIRCLE 61 ON SERVICE CARD

#### 62—Duo-Tested Tanks

All steel welded construction, steel fittings, maximum safety and trouble-free service are features of Charlotte Tank's Duo-Tested NH<sub>3</sub> storage units. Available for stationary or truck mounted installation they have design working pressures of 250 or 265 lb. psig. Storage tanks are available in 500 or 1,000 gal. capacities and applicator tanks in 65, 100 or 150 gal. capacities. For full details and prices

CIRCLE 62 ON SERVICE CARD

See page 58 for information on  
these Reader Service numbers—

63—Irrrometer

65—Loadtrol

64—Perma-Plate

66—SS Gun Jet



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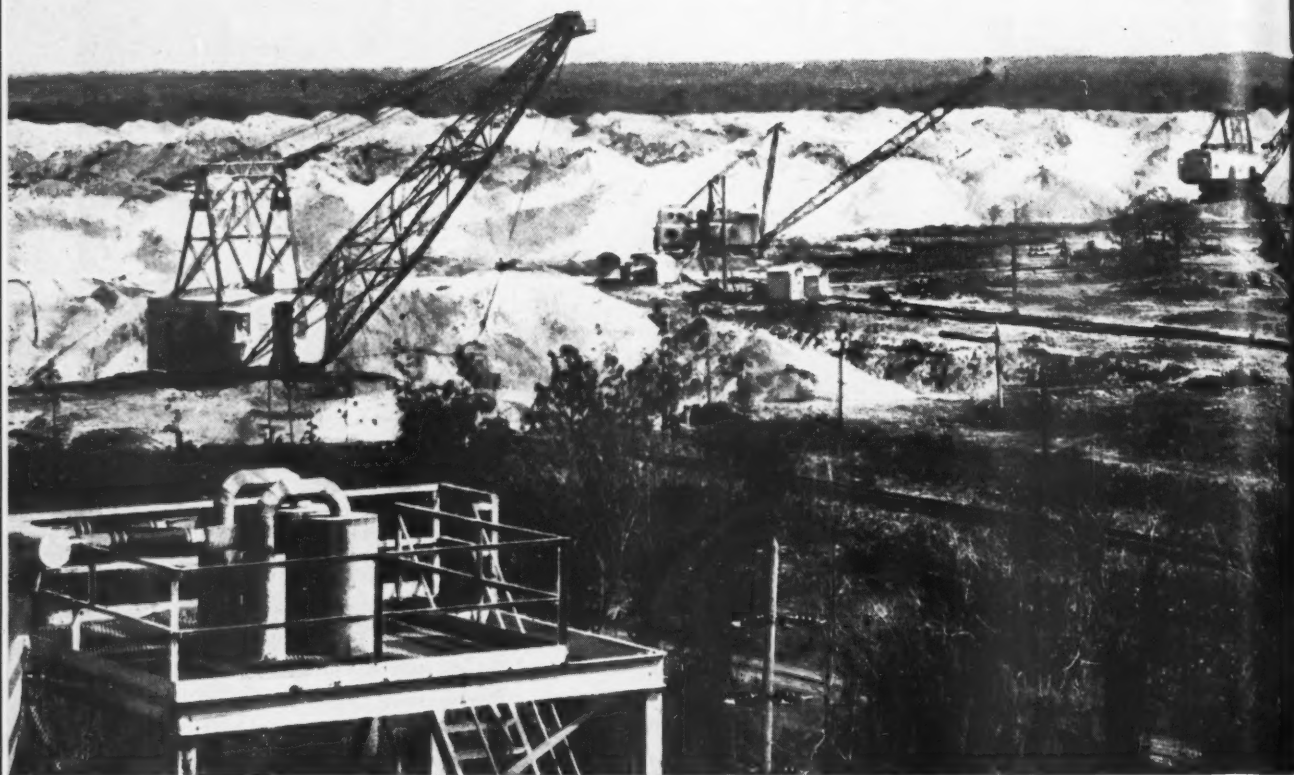
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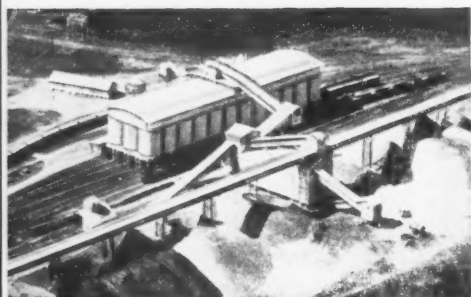
All grades of Complete Fertilizers Superphosphate

Gelatin Bone Products Salt Cake Ammonium Carbonate

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Phosphoric Acid and Phosphates

Phosphorus and Compounds of Phosphorus



From the air—wet rock storage and drying plant, with dry rock storage silos in background. These silos, 29 in number, have a total capacity of 40,000 tons of dried rock. Under the silos are four runways where 40 railroad cars can be loaded at a time.

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# VIEWING WASHINGTON

with Farm Chemicals  
Washington Bureau

## on agriculture

Farm proposals now pending before Congress have great significance to the farm chemicals industry. Here are highlights:

Soil bank proposals are among the most important. The President's proposal would pay farmers for underplanting wheat and cotton, perhaps rice and corn. Such underplanted acres would be put into a deferred production **acreage reserve**, not to be cropped or grazed. The government also would pay farmers a "fair share" of the cost of new conservation practices on any crops. This land would be put into a **conservation reserve**.

**Federal payments** for land in the acreage reserve would be the net income a farmer would have gotten if he had planted and harvested those acres. Payments for conservation may amount to an average of about \$1 per acre, an extension of the \$250 million Agricultural Conservation Program.

Ike would make the soil bank voluntary. But Senate Agriculture Committee Chairman Ellender, key man on this year's farm legislation, prefers a mandatory program—retirement of a percentage of land by threatening withdrawal of price supports, ACP payments and other aids.

**Corn.** While the administration recommends either (1) paying farmers for underplanting allotments, or (2) dropping controls and making support discretionary—no significant change in the corn program is expected.

**Cotton.** Ike recommends quantity controls for cotton production starting in 1957—to replace present acre allotments and marketing quotas. This could be a big blow to fertilizer sales . . . and is a strong possibility.

**Other commodities.** Minimum acreage provision on **peanuts** would be abandoned, permitting lower allotments. **Rice** allotments should be dropped entirely and supports made discretionary, or payments made for underplanting allotments. Wheat proposals would (1) exempt grain used entirely on the farm where produced from controls, (2) permit USDA to sell surplus for livestock feed at competitive prices and (3) take more states out of the strictly-controlled commercial area. (4) **Soybean** and **flaxseed** price supports would be increased above those of last year—inducement for greater production.

More money for other government activities of interest to the chemicals industry: Research and Extension Services. The President's budget requests a boost of about \$20 million in research funds, including gains of \$2 million for plant and animal disease and pest control and about \$5 million for Experiment Stations. The Extension Service would get an increase of almost \$5 million.

The President's farm plan and budget proposals, in the light of this election year, are powerful political documents. They indicate a sharp change in Administration farm aid policy—following three years of gradual retrenchment.

**Democrats**, pushed back on their heels by the bigness of the Administration's proposals, show serious intent to outbid the Administration for the crucial farm vote. This may come in the form of a return to fixed 90 per cent of parity price supports . . . more money for the soil bank . . . and SCS . . . and many other benefits.

Agriculture is a highly sensitive political . . . and economic . . . spot this year. Whatever is done in the halls of Congress, it means one thing for sure: More cash in the farmers' hands.

# VIEWING WASHINGTON

## on business

**Official view of the course of the economy** during 1956: **First quarter** will bring the peak in the boom . . . with "gross national product" reaching almost 399 billion dollars. Start of slight decline also may come during first quarter. **Second quarter** will see boom deflate more and on down to the expected low of the year in the **third quarter** of about 390 billion dollars. Probably no lower. **Fourth quarter** is expected to begin another upward trend. Adjustments in the trend may be made by slowing automobile building and residential construction, plus credit brakes held on by the government.

**Tax relief still seems probable this year** . . . although the President urges a go-slow attitude. The outlook: Small business may get special relief by reversing the present rate of 30 per cent on all corporate income plus the 22 per cent bite on income above \$25,000 . . . amounting to a cut of eight points. Corporation taxes, however, are to stay at 52 per cent. Individual income tax cuts have strong backing (in this election year) despite public breast-beating against it, but too early to tell how. Excise taxes, scheduled to be pared April 1, will be continued as is . . . plus perhaps increases in highway use taxes for road building.

**Watch for a drive, government-sponsored, to slow up business mergers.** Officials say mergers are going on at an accelerated clip . . . too fast for government staffs to keep pace. They're bogged down in trying to decide which are good for economy, which are monopolistic. Changes likely to be pushed include: (1) ordering firms to notify the government ahead of time about merger plans to give time to okay deal or kill it; (2) provide more money for Justice Department and FTC to hire added staffers.

**A sharp reduction in the budget for the Tennessee Valley Authority,** proposed by the President, is running into serious trouble. TVA supporters think they have the strength to stop the proposal. Ike suggested that TVA pay back to the Treasury \$75 million in the 1957 fiscal year beginning July 1, instead of only about \$35 million as scheduled under TVA's 40-year repayment plan.

**US production of anhydrous ammonia in 1955** is estimated at about 3.4 million short tons, the Business and Defense Services Administration reports. That's a 25 per cent boost over 1954. This production, equivalent to about 2.8 million tons of nitrogen, represented a rate of output equal to 96 per cent of capacity on Jan. 1, 1955. The indicated domestic nitrogen capacity as of Jan. 1, 1957 is estimated at 4.2 million tons . . . and could be higher.

**Final Agriculture Department pesticide stocks report** is expected out sometime in March . . . to firm up the earlier tentative report. The Department's Pesticide Situation report is due the end of March.

**Food & Drug Administration now is set to crack down** on violators of the Miller Pesticide law amendment. By the time the major farm commodity shipping season gets underway, all pesticide chemicals on the market will have been given tolerance decisions. Government-industry program of farmer and shipper education now is underway. FDA recommends this advice for growers: "Agricultural dusts and sprays should be used only on the crops specified, at the times specified, and in the amounts specified."



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More sales will result from increasing roadside stabilization measures to avoid erosion such as shown on the untreated portion of this Florida road bank.

**A** NEW boom in the fertilizer industry is in the making. New opportunities for substantial sales expansion over the next five to ten years seem almost certain to come from three vast new programs now being developed in Washington. At the present time, it looks like all three will be approved by Congress this year and begin to bring at least some measurable benefits to the industry this year.

These programs should be watched carefully for the sales-expansion opportunities they are expected to bring:

1. The multi-billion dollar highways development program.
2. The widely-supported watershed protection and flood prevention program.
3. The billion-dollar "soil bank" program.

This report is intended to provide you necessary background on the developing programs.

### The Highways Program

There is almost unanimous agreement in Congress for the need for a vast improvement in our national highway system. The President's highway advisory committee last year recommended a 10-year program

## New opportunities seen in three Federal programs

# Plant Food Sales Boom

costing \$101 billion for a 40,000 mile interstate highway system. While the objective also is pretty well agreed upon, highway proposals were not passed last session because of major differences over financing.

The President, who had recommended floating a near \$25 billion bond issue to pay for the Federal contribution, has now shown a willingness to compromise. Leading Democrats have favored higher highway use taxes, on gasoline, oil, tires and so forth, to pay the federal share. This difference is expected to be resolved in the current session and a big highway expansion program approved.

Along the thousands of miles of new highways, as well as farm-to-market roads, fertilizers will be in demand to help in the rapid stabilization of broad, shallow, and vegetated roadside areas. Similarly, fertilizers will help to get a rapid vegetative cover on steep cuts and fills along highway routes where the broad and shallow cross-section is impossible.

As you may know, there has been a rather spectacular change in view regarding roadside treatment during the past 20 years. Much of the credit for this change goes to the Agriculture Department's Soil Conservation Service and to soil conservation districts. Where roadside ditches, either earth or concrete, were once an accepted practice for carrying off water from highways, and from adjoining property, the trend is now sharply away from such ditches. Not only were they a safety hazard to motorists, but an erosion hazard to both roads and the adjoining lands. Annual maintenance costs to prevent or repair gullyng from these ditches ran to substantial figures.

The campaign by the SCS in favor of the broad and shallow cross-section, well-protected by a fairly dense cover of vegetation, has now been widely accepted by state and county highway and highway maintenance departments across the country.

The broad and shallow roadsides reduce the safety

**By John Harms**  
*Washington Bureau Chief*

hazard, are easy to maintain, cut down maintenance costs of highways, and have won favor with many people for purely aesthetic reasons—they're better looking. In arid and semi-arid sections, too, it has been possible to build diversion terraces at intervals in these roadside areas to divert precious water safely onto farm and ranch land instead of letting it run to waste.

Fertilizers are important, of course, in getting a good vegetative growth on what is usually very raw soil and getting this growth as rapidly as possible after the actual concrete or asphalt work is done.

### **Watershed Protection, Flood Prevention**

The 1955 hurricanes and floods in the East and the more recent floods in the West have underscored the pressure for a stepped-up program of federal assistance in watershed protection and flood prevention at this session of Congress. While much of the demand will be centered on construction of new large dams, to be built primarily by the Army's Corps of Engineers, there will also be strong backing for an expansion of work in the drainage areas back of the dams—primarily aimed at getting new or better cover on the land to cut down erosion, reduce excessive, rapid run-off of water, and increase absorption. Congressmen are being reminded that outside of the oceans the land itself is the greatest water reservoir in the world.

Rep. Clarence Brown of Ohio is pushing a "water bank" bill, which would give farmers payments representing up to 75 per cent of the cost of constructing farm ponds, and also up to \$20 an acre for conservation management and use of drainage lands behind such ponds.

Rep. Brown is especially concerned about the declining levels of ground water tables and the increasing difficulties of industries and municipalities in

getting water for pumping operations. He is aware, too, that farmers are increasing their water pumping from underground sources for sprinkler irrigation, especially in the East and South.

Whether Rep. Brown's bill is finally enacted or not—and it's still too early to forecast this—it's sure that upstream work on watersheds is to get more backing. The upstream work, of course, emphasizes intensive use of all kinds of vegetation—often in conjunction with such farm measures as terracing, strip cropping, contouring, etc. And this means fertilizer.

### **The Soil Bank Program**

Depending upon what Congress and farmers finally do, somewhere between 20 and 40 million acres that have been cultivated for so-called "cash crops" will be shifted to grass or some other kind of protective "soil bank" cover this year. Payments will be made to farmers in connection with this wide-scale re-grassing operation—and will be in addition to those that have regularly been available under the Agricultural Conservation Program.

While it's too early to predict the extent of federal money that will be available for fertilizers, the soil bank operation now figures to open the way for one of the largest jumps in fertilizer consumption in memory.

It's worth noting, too, that as farmers cut back their acreage of cultivated crops, they can be expected to use additional fertilizer on their remaining crop acreage in order to intensify production per-acre. This has been an invariable corollary of crop-acreage cuts in the past.

While it is not possible at this time to forecast the full extent of the impact of these three programs on the fertilizer industry—it is well to be aware of their direct tie-in with the industry. As Congress and the Administration work out the details, it will be possible to get a better line on the full meaning to the industry. Because of the increasing activity of the Federal government in many segments of the economy, it is important for the industry to keep a close eye on Congress this spring and summer. ▲

Across the country in a California canyon, the results of proper stabilization are clearly visible. A good vegetative cover eliminates erosion on the treated portion of the bank.

*Photo by SCS*



# Opelousas Plant Features Unique

Second to use TVA  
over Broadfield deno



Overall view of the Anthony Chemicals plant, showing the lake where cleaning water empties.

By James A. Bourdier



**N**ESTLED deep in the Opelousas, La., portion of the Southland stands one of the world's two acidulation plants where the TVA cone mixer is used over a Broadfield den, a design eliminating the pug mill.

In this plant, owned and operated by Anthony Chemicals, Inc., analysis of the superphosphate reveals the available phosphoric acid to be an astounding 19.62 per cent ex-den.

◀ Forty-five foot elevator towers over other plant components. After traveling up elevator by screws, rock dust is taken to weigh belt or stored in the vertical tank shown at left of the elevator.

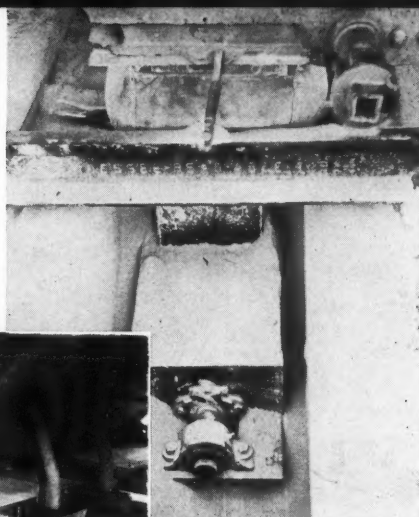


# Design

## Vaone mixer

## demo pug mill

Close-ups of hopper car unloading show (below) pit under rails to receive rock dust. At right is the first of the screws which takes dust from rail pit to the weigh belt in the den.



Dr. Warner Anthony adjusts scale of weigh belt, where 40 pounds of rock dust are always kept during process.

Phosphoric rock dust used in the plant is 75 BPL material, according to Dr. Warner W. Anthony, president of the company, ground 90 per cent through a 100 mesh screen. Arriving at Opelousas by rail from Florida, it is taken by a 10-foot, nine-inch shrouded screw feeding into a 12-inch screw with an overall length of 30 feet.

The dust goes to an elevator, 45 feet on centers, and can either be processed or routed to a storage space accommodating approximately one hopper car load of rock dust.

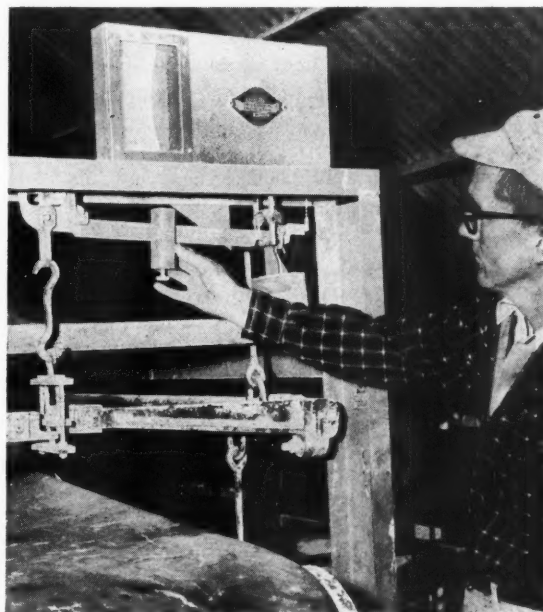
Entering the process facilities, the rock dust is fed into a 12-inch variable speed drive screw and onto a weigh belt. From here it goes into the TVA cone mixer where it is combined with sulfuric acid and water.

Sulfuric acid, as it arrives by rail tank car from Baton Rouge, runs 77 per cent or 60° Be and sufficient water is used to make a 54° Be acid.

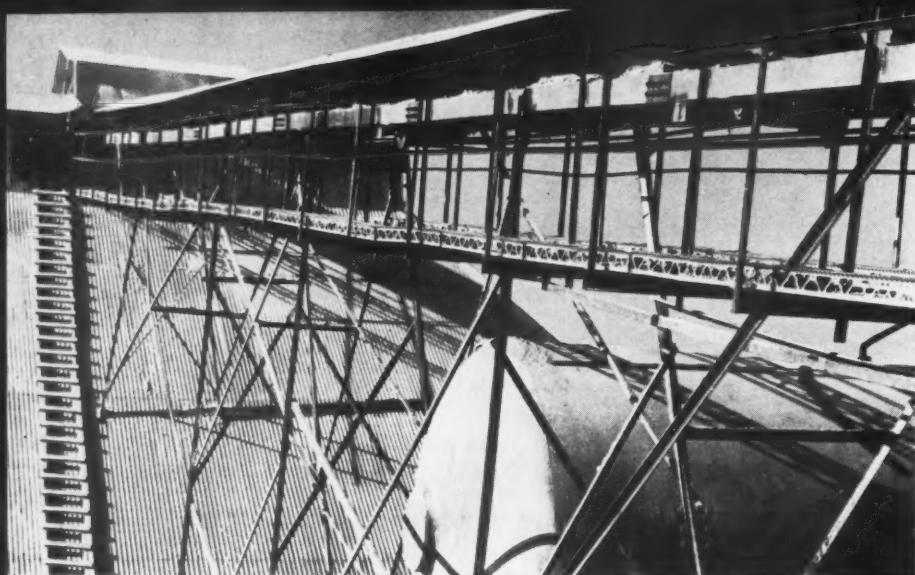
The formula used at the Opelousas plant produces 20.7 tons of finished material per hour (23 tons of wet material) from 25,400 pounds of phosphate rock dust, 19,000 pounds of sulfuric acid and 1,740 pounds of water.

Storage facilities are provided for about two cars of acid. It passes through a three inch pipe via a Labour pump, into a Fischer & Porter rotometer and is fed into the cone mixer through four pipes each ending in a 3/8-inch nipple.

Dr. Anthony states that adjustment of the nipples is the critical point in the operation, largely determining quality of the finished product. Bill



Sulfuric acid and water meter valves are set by plant foreman, Edius Herbert. Mixture in cone mixer utilizes 75% of acid meter output; 14% water meter output.



A 100-ft belt conveyor takes finished material to storage. Tank shown is for acid storage.

Wiems of American Cyanamid is credited with their adjustment. Two other nipples spray the water into the rockdust-acid mixture.

When mixing is complete, the product falls into a trenching den 33 feet long, five feet high and six feet wide, moving at the rate of seven inches per minute.

At the end of the den a cutter shaves off the superphosphate onto a 100-foot, 20-inch belt conveyor which moves the material to storage. The storage house has a capacity of 3,000 tons.

Analysis of the super by Shuey & Co., Inc. provides these ex-den figures: moisture, 8.90 per cent; APA, 19.62 per cent; insoluble phosphoric acid, .73 per cent; total phosphoric acid, 20.35 per cent; and free sulfuric acid, 2.08 per cent. Other samples taken since the plant began operation on November 15 last

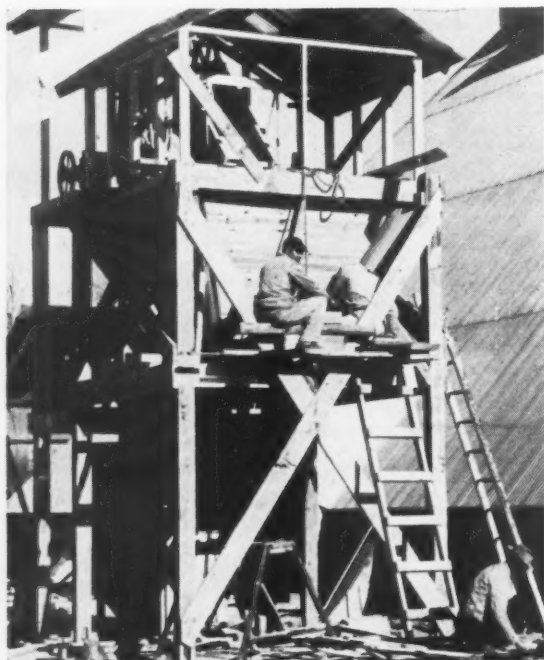
year have shown APA ratings of 18.81, 18.92, 19.51 and 18.89 per cent.

The plant itself was designed and engineered by Davidson-Kennedy. It utilizes a four-inch water well, 220 feet deep, for a scrubber equipped with eight spray nozzles. A fan, powered by a 10-hp motor, pulls fumes from the den and through the scrubber.

Frank Reedy of Green & Reedy produced the unique feature of using the TVA cone mixer over the Broadfield den, a setup first employed in a similar plant at Franklinton, La.

In addition to Dr. Anthony officers of the company include J. W. Anthony and J. W. Anthony, Jr., vice presidents, and E. B. Anthony, secretary.

Superphosphate produced here goes to another Anthony-owned Opelousas company, Farm Services, and is utilized in production of mixed goods. ▲



LEFT: Near completion is the bulk loading stand for trucks in front of Anthony Chemicals plant storage.

BELOW: Shown is the TVA cone mixer over a Broadfield den and four of the six acid and water lines.





## The Ag Pilot Shortage :

# Our Readers Comment

By George Peter

EDITOR'S NOTE: *The author, who developed the original article on the ag pilot situation for our November, 1955 issue, was assigned this follow-up to present other views on an issue of broad industry concern.*

ONE thing is certain: Interest in farm chemical spraying is wide, vigorous and keen. All are concerned when the problem of pilot shortage blocks the fullest use of spraying by air as reported in the November FARM CHEMICALS.

The question that follows is—What can be done about it? What is the next step?

It was the hope of the editor in assigning the article, *Spray Pilot Shortage*, to discover if such a report might not result in some alerting of all concerned, not only to the shortage itself, but to the problems involved in keeping up the pilot supply and to the importance of the pilot himself—if every segment of farm aviation is to benefit to the fullest from farm chemicals.

Reader response has more than richly rewarded that hope. Letters of comment, suggestion and disagreement in language more alive and effective than stilted officialese tell what the "trouble" is from the particular point of view of applicators and aviation industry spokesmen, the area of most direct concern to the pilot.

Pilots themselves speak in punchy, straight-from-the-shoulder style, well expressed and pertinent. Aviation industry spokesmen and aerial operators agree on many of the points made by the pilot, disagree on others.

Representative quotes below show how some look at the pilot shortage. Where there is an opposite point of view or comment available, as in almost every case there is, this also is included. But for the most part, even those apparent contradictions are basically in agreement with each other.

For example, one ex-duster pilot of eight years

accident-free experience contended that "there is *not* a shortage of qualified spray pilots." But skilled operators often look to other fields of activity because pilot pay "in many cases does not even compare favorably with that of common laborers." He is really in agreement with one large operator of an aerial applicator business who wrote in that he raised his flyers up "to our existing guarantee now of \$5,400 per year" in order to keep good men interested in the business.

Charles Parker, executive director of National Aviation Trades Association, the only organization serving the aerial applicator and pilot on a national level, agrees with both writers. "A man with the accomplishments of today's spray pilot is worth his salt and must be well-paid if you don't want him to go off into some other business," says Charlie.

The variety of divergent views presented, which seem to be just the other sides of the same coins, suggest only one thing as the next step to take in welding agricultural aviation into a cooperative whole for the benefit of all—the pilot, aerial applicator operator, farm chemicals manufacturer, formulator and distributor, and the farmer.

This step would be full backing by all in the coming effort by agricultural aviation interests to have appointed by the Agricultural Research Service in the U. S. Department of Agriculture some one specialist whose sole function would be service to agricultural aviation so that advice and information on aerial spraying could be given to industry and applicators.

The idea is that information would be gathered from all Federal agencies, state agencies and Experiment Stations, and would cover research on new possibilities for agricultural aviation. Results would be disseminated through Extension Service.

Most of the opinion presented agrees that there is a shortage and that "there will continue to be a shortage until some changes are made." On the other hand, larger operators report increasing success and "don't feel that agricultural aviation will suffer



a manpower shortage" to the extent threatened.

It may be that a central information clearing house such as that proposed for Agricultural Research Service could channel information into the "short areas" of a type that would educate all to practices necessary to make it profitable for the spray pilot in such areas to stay in business.

When spray pilots are forced out of the flying field, all suffer: The chemical manufacturer, the formulator, distributor, the aerial applicator-operator and the farmer. At the same time, aerial application in some areas may not be the best method of spraying and information could go out to this effect to prospective operators and distributors.

Here's the dim side of the picture as presented by a spray service operator in the tobacco growing area of Kentucky who names the "cut throat operator" and some types of "chemical distributors" among other factors contributing to the pilot shortage.

"The chemical distributors' (in his area) prices change hourly. Each distributor has a different price, ranging from 2 cents to 30 cents per gallon. He sells to the farmer for the same price per gallon as he does to the aerial applicator in view of the fact that the applicator buys by the drum. The farmer wants lower prices for his spraying as he thinks the applicator makes all the money. The price of airplanes has gone sky high and still going up. It's no wonder a good spray pilot can't make a living spraying."

"Just why is there a shortage of aerial spray pilots?" he asks.

He says, "The majority of aerial operators in this country are the small operators who own from one airplane (self-operated) to three. This operator has \$2,500 to \$6,000 in each piece of equipment and in most cases is operating at least in part on borrowed capital."

He concludes that this type operator "usually ends a season with very little more than grey hair he has accumulated worrying how to make ends meet." If he does make ends meet, he adds, "he goes looking for a pilot. What has he to choose from?"

### The Brighter Side

On the other hand, John F. Neace, who is manager of the Marsh Aviation Company in Phoenix, Ariz., as well as agricultural vice president of NATA, writes that, in pointing up the pilot shortage, we "obviously have one side of agricultural aviation."

"But," he adds, "there must be a brighter side also!" The picture presented by Neace shows that

## Plant Safety Tip #7

### 41 Days Lost



**The Accident:** A 38-year-old worker, employed for seven years as laborer and payload driver, was using a shovel to clean an area of the floor.

During the operation, he continuously struck the hard floor, and the jarring of the shovel handle against his hand caused a bruise of the palm, resulting in a bone infection. The employee lost 41 days work.

**Cause:** Wrong method of holding the shovel for this particular job.

**Comment:** This is a good example of how a simple task can cause injury when there is no unsafe condition present.

**Action Taken:** Instruction was given the crew on basic use of the shovel and the proper method of use for this application.

while there may be an overall shortage in some areas, operators are failing and pilots are leaving the business, in other regions there are outstanding successes and growth of benefit to all—the farm chemicals industry, pilots and aviation.

Since 1945, "this company has grown from three aircraft to approximately 25 agricultural aircraft," he says. And "we have fixed bases at Yuma, Phoenix, Casa Grande, Marana, in Ariz.; Walla Walla, Wash.; Athena, Ore., and have operated from fixed bases in Martin, S. D., and Idaho Falls, Ida.

"We have, in that period of time, worked in 14 Western states and Mexico, and for the past two years have been traveling a distance of 3,000 miles from Phoenix to spray timber for the Canadian Government."

Neace will also tell you that since taking over the original company, Marsh Aviation has borrowed close to one million dollars from local banks, all of which has been repaid. He will also add that "we were recently offered 1/4 million dollars to sell this company to a local service carrier airline."

Regardless of problems, if you need your spirits propped up, Neace is the man to listen to. "It is my belief that agricultural aviation is here to stay."

But all are warned, "It is a tough business to be in and it will continue to be so." ▲



# WSA Holds Charter Meet

## Weed education emphasized by speakers

**E**DUCATIONAL deficiencies, at all levels, appear a major limiting factor in the growth of chemical weed control. Speakers voiced their concern on this and other problems during the Weed Society of America's charter meeting held January 4-5 in New York City.

Not only must farmers be made more weed conscious, said one speaker; the interest of agricultural leaders must be kept at a high level, especially when there is a weak educational background.

At the student level, training programs in plant identification and instruction on characteristics of major herbicides would be of considerable aid. Undergraduates, it was stated, need more thorough grounding in fundamentals, coupled with production courses designed to give practical approaches.

Farm advisors—vo-ag teachers, extension agents, custom sprayers and others working with the farmer should also be provided with a better knowledge of the basic concepts of weed control including basic data on available control materials, sprayer calibration and weed identification.

Both extension and industry need persons versed in weed control, trained to understand research problems and results and able to apply this infor-

mation on a practical basis, a speaker pointed out.

One present difficulty, adding to farm-level confusion, is the method of presenting control recommendations. A college worker showed that pounds per acre mean little but added trouble to the farmer when he measures in quart volumes. Rewriting control data in consumer language would overcome this problem and decrease the possibility of miscalculation.

With improvements at all four levels—industry, advisory, farm and student, a higher degree of confidence could be gained with resulting increases in weed control activity and sales.

This education angle appeared again in a panel discussion of regional problems. In a report from the north central area, transfer of practical data into active programs was termed the limiting factor.

In this section, weed control in onions is considered a major weed control problem and the spread of aquatic weeds was cited as important.

Costs of weed control in cotton should be lowered, said the southern region speaker, and on both cotton and soybeans there is a need for better late season control materials. This was just one of sev-

Newly elected WSA officers are: W. C. Jacob, University of Illinois, treasurer-business manager; W. B. Ennis, Jr., Field Crops Research Branch, ARS, USDA, and Mississippi State College, president; A. S. Crafts, University of California, vice president; W. C. Shaw, Field Crops Res. Branch, ARS, USDA, secretary.



eral occasions on which the cost factor was emphasized.

In the west, hand weeding of vegetables is still a common practice with but few chemical controls now adaptable. Lettuce, a \$100 million crop to western growers, was cited in particular as a vegetable on which controls would be most effective.

One grower of ornamentals in the west is reported to spend \$800 an acre in weeding activities and a figure of \$400 was termed usual for many other such operations, indicating a large potential market for good chemical controls.

Western rangeland also offers a promising market but it was stressed that control costs must be kept down because of the relatively low land values.

Weed control on both agronomic and horticultural crops is a pressing need in northeast states and, so far, little has been done with herbicides in the growing of nursery and flower stock, a \$150 million business in this area.

A rapid increase in horse nettle was reported by the northeast representative who also pointed out that trouble with alfalfa might be expected because the crop was being extended to unsuited acreages.

Reviewing herbicide development and problems in relation to specific crops, other WSA speakers featured these points:

**Flax.** Needed: cheaper herbicides; grass killer with both immediate effect and delayed action to catch late-emerging weeds; material less injurious to legumes sown in flax; treatment permitting sowing of forage grasses with flax.

Present work includes development of materials with greater specificity, control of weeds in crops preceding flax and development of greater crop tolerance (hereditary variations of 2, 4-D tolerance in varieties and strains is known).

**Corn.** There is doubt that use of present herbicides will increase. Pre-emergence materials may be needed for grass control, a growing problem, but—selling pre-emergence to the farmer is viewed as a tough job unless established as a field preparation practice.

**Peanuts.** On-farm interest is high, indicating a bright future. The treated acreage is expected to increase as more research data is available.

**Forage.** Weeds are of increasing importance, often presenting serious problems. Control work is developing more slowly than on other crops.

**Small Grains.** Herbicide use is considered only when other methods fail because of specific weeds, and careful timing of sprays is a must because resistant or susceptible stages may exist only a short time. Problems are complicated by legume seed-

lings in small grains, restricting choice of chemicals. Termed promising are phenoxy butyrics, other new materials.

**Soybeans.** Use of herbicides is promising but a chemical must be consistent and inexpensive. Says the American Soybean Association—in many areas weeds are considered a major stumbling block to production.

Public health and roadside aspects of weed control were also considered during the meeting. To date much of the public health importance has been a by-product of highway and right of way maintenance by state highway departments and public utilities. Here, death of weedy growth has, in areas, cut pollen counts providing some relief to susceptible persons.

However, a Detroit official showed definite gains in efforts to rid city areas of ragweed. At a cost of \$4-6 per acre for a 16 week program involving 3,000 to 3,500 acres, Detroit authorities reduced the pollen load by 75 to 100 tons per season—per capita cost: about 30 cents.

In roadside weed control, early attack was highly recommended since it eliminates the cutting and removal costs that result once sizable growth has been attained. Aside from obvious benefits of highway work, one speaker pointed out the financial gains from less frequent mowings. Weeds and not grasses are usually the fast growers and require extra trims.

Nearly 700 persons attended sessions of the charter meeting to hear some 90 papers. W. B. Ennis, Jr., Mississippi, was elected president for a two-year term, succeeding R. H. Beatty, American Chemical Paint Co., who served as head during the WSA organizational period. Other new officers include A. S. Crafts, California, vice-president; W. C. Shaw, USDA, secretary; and W. C. Jacob, Illinois, treasurer and business manager of WEEDS publication.

The next meeting is slated for Memphis, Tenn., January 13 to 15, 1958 at the Hotel Peabody with the Southern Weed Conference serving as host.

The 10th annual meeting of the Northeastern Weed Conference was held on January 6, following the WSA sessions. W. Kennard Lacy, assistant county agent, Otsego county, N. Y., was presented with an award for his outstanding extension work in chemical weed control in forage crops.

A prize of \$100 went to Clyde C. Dowler and N. W. Baughman, West Virginia, for the best paper delivered at the conference—"Recovery of DNOSBP as Affected by Soil Properties."

New officers of the regional group include E. L. Danielson, Virginia, president; C. L. Hovey, Eastern States Farmers' Exchange, vice-president; R. J. Aldrich, USDA (Rutgers), secretary; and D. A. Schallock, Rutgers, treasurer. ▲

# Fertilizer Tonnage Drops, Nutrients Continue Gain

**D**ESPITE a drop of 1.3 per cent in fertilizer consumption in the US and territories during 1954-55, plant nutrient usage continued its upward course, gaining 2.6 per cent over 1953-54 to reach a new high of 6,047,000 tons.

Figures in the USDA preliminary report on fertilizer consumption issued by Walter Scholl, Hilda M. Wallace and Esther I. Fox of the ARS Soil and Water Conservation Research Branch, show that fertilizer consumption of 22,468,000 tons included 15,151,000 tons of commercial mixtures (down 2.5

per cent) and 7,317,000 tons for direct application (up 1.2 per cent).

Accompanying tables show the areas of gain and loss, with the biggest decrease in the East North Central region and the biggest relative gains in Pacific and New England states for both mixtures and materials.

The USDA statisticians point out that the tonnage drop of mixtures in the East North Central states was not attributable to a particular grade or group of grades but that losses in materials were primarily

**Table 1. Preliminary Fertilizer Consumption  
Year Ended June 30, 1955**

Region	Mixtures		Materials <sup>2</sup>		Total	
	Con- sumption <sup>1</sup> 1,000 tons	% Change from 1953-54	Con- sumption <sup>1</sup> 1,000 tons	% Change from 1953-54	Con- sumption <sup>1</sup> 1,000 tons	% Change from 1953-54
New England <sup>3</sup> .....	373	+6.0	79	+22.1	452	+8.5
Middle Atlantic <sup>4</sup> .....	1,882	+2.4	217	-6.0	2,099	+1.5
South Atlantic <sup>5</sup> .....	4,922	-2.0	1,149	+2.5	6,071	+1.2
East North Central <sup>6</sup> .....	3,371	-6.9	1,031	-14.2	4,402	-8.7
West North Central <sup>7</sup> ....	1,283	-4.5	905	+2.7	2,188	-1.7
East South Central <sup>8</sup> ....	1,983	-2.8	910	-7.5	2,893	-4.3
West South Central <sup>9</sup> ....	704	-1.3	659	-3.3	1,363	-2.3
Mountain <sup>10</sup> .....	54	-3.3	339	+0.7	393	+0.1
Pacific <sup>11</sup> .....	297	+8.9	1,897	+18.4	2,194	+17.0
Continental U. S. ....	14,869	-2.6	7,186	+1.2	22,055	-1.4
Territories <sup>12</sup> .....	282	-0.4	131	+1.7	413	+0.2
Total: 1954-55.....	15,151	-2.5	7,317 <sup>13</sup>	+1.2	22,468	-1.3
1953-54.....	15,541	0.0	7,232 <sup>13</sup>	0.0	22,773	0.0
1952-53.....	15,722	+1.2	7,690 <sup>13</sup>	+6.3	23,413	+2.8

<sup>1</sup> Includes fertilizers distributed by government agencies.

<sup>2</sup> Includes ground phosphate rock and colloidal phosphate, basic slag, secondary and trace element materials, such as borax, metallic salts, sulfur, gypsum, etc., used as separate materials. Does not include liming materials of the quantity of materials used for manufacture of commercial mixtures.

<sup>3</sup> Maine, N. H., Vt., Mass., R. I., Conn. <sup>4</sup> N. Y., N. J., Pa., Del., D. C., Md., W. Va. <sup>5</sup> Va., N. C., S. C., Ga., Fla. <sup>6</sup> Ohio,

Ind., Ill., Mich., Wis. <sup>7</sup> Minn., Iowa, Mo., N. D., S. D., Neb., Kan. <sup>8</sup> Ky., Tenn., Ala., Miss. <sup>9</sup> Ark., La., Okla., Tex. <sup>10</sup> Mont., Ida., Wyo., Colo., N. Mex., Ariz., Utah., Nev. <sup>11</sup> Wash., Ore., Calif. <sup>12</sup> Hawaii, P. R., Alaska. <sup>13</sup> Materials not guaranteed to contain N, P<sub>2</sub>O<sub>5</sub> or K<sub>2</sub>O included in 1954-55 total, 785,000 tons; 615,513 tons in 1953-54; and 877,487 tons in 1952-53.

due to a drop in direct application of phosphate rock to 405,000 tons compared to 606,379 in 1953-54.

The high percentage increase in tonnage of materials shown by the Pacific region was due, aside from gains in gypsum, considerably to increases in the tonnage of anhydrous and especially aqua ammonia. Gains in New England materials usage reflected a return to superphosphate for direct application.

Included in the overall materials figure were 6,532,000 tons of products containing one or more N, P or K materials (down 1.3 per cent) and 785,000 tons of secondary and trace element materials (up 27.5 per cent). The big gain in trace elements was caused mainly by the increased use of gypsum in Pacific states.

Primary nutrients, totaling 6,047,000 tons included 1,984,000 tons of nitrogen (up 7.4 per cent); 2,228,000 tons available  $P_2O_5$  (down 0.6 per cent) and 1,835,000 tons  $K_2O$  (up 1.6 per cent).

Mixed fertilizers supplied 4,203,000 tons of primary nutrients including 814,000 tons N (up 4.6 per cent), 1,776,000 tons available  $P_2O_5$  (down 1.4 per cent) and 1,613,000 tons  $K_2O$  (up 1.1 per cent).

Direct application materials accounted for 1,170,000, 453,000 and 221,000 tons respectively of N, P and K, gains of 9.4, 2.8 and 5.2 per cent.

Plant food consumption figures show that only nitrogen gained nation-wide, reflecting the current trend toward high-N fertilizers. The average nitro-

gen content of mixed fertilizers was 5.4 per cent and of primary nutrient materials, 17.9 per cent compared to 5.01 and 16.16 per cent respectively in 1953-54.

A national decrease in  $P_2O_5$  is attributed largely to the use of less phosphate materials in mixtures as compared to increases in nitrogen and potash. The average available  $P_2O_5$  content in mixtures was but 11.7 per cent compared with 11.59 per cent in 1953-54.

About 27 per cent of the total consumption of available  $P_2O_5$  was used in the West North Central region, a large consumer of ammonium phosphates and triple superphosphate. Apparent consumption of these materials increased about 44 per cent.

A national gain in  $K_2O$  consumption resulted more from increased use in mixtures rather than direct application of potash materials. The national average of  $K_2O$  in mixtures increased from 10.27 per cent in 1953-54 to 10.6 in the past fertilizer year.

The decrease in potash consumption in East North Central, East South Central and West South Central regions is mostly reflected in the decrease in use of mixtures. Only a very slight change in average  $K_2O$  content of mixtures used in these regions was noted.

Total nutrients in all mixtures averaged 27.7 per cent compared with 26.87 in 1953-54 and for all primary nutrient fertilizers, 27.9 per cent compared to 26.61 for the previous year. ▲

**Table 2. Estimated Content of Primary Plant Nutrients All Fertilizers, Year Ended June 30, 1955**

Region <sup>1</sup>	Nitrogen		Available $P_2O_5$		Potash		Total	
	Quantity 1,000 tons	% Change from 1953-54	Quantity <sup>2</sup> 1,000 tons	% Change from 1953-54	Quantity 1,000 tons	% Change from 1953-54	Quantity 1,000 tons	% Change from 1953-54
New England.....	29	+15.9	48	+13.9	47	+9.3	124	+12.6
Middle Atlantic.....	123	+11.5	230	-1.6	195	+6.1	548	+3.8
South Atlantic.....	398	+4.1	472	-4.0	485	+4.8	1,355	+1.4
East North Central....	282	+8.1	539	-1.5	576	-3.0	1,397	-0.4
West North Central..	298	+12.0	355	+4.8	162	+4.7	815	+7.3
East South Central....	271	+2.9	254	-6.7	213	-0.6	738	-1.6
West South Central...	192	+5.8	152	+5.0	82	-3.3	426	+3.6
Mountain.....	68	+3.6	57	-3.2	3	+28.3	128	+0.8
Pacific.....	265	+12.8	101	+9.5	31	+12.8	397	+11.9
Continental U. S.....	1,926	+7.6	2,208	-0.6	1,794	+1.5	5,928	+2.6
Territories.....	58	+0.9	20	-0.7	41	+3.3	119	+1.4
Total: 1954-55.....	1,984	+7.4	2,228	-0.6	1,835	+1.6	6,047	+2.6
1953-54.....	1,848	0.0	2,242	0.0	1,806	0.0	5,896	0.0
1952-53.....	1,637	-11.4	2,271	+1.3	1,738	-3.8	5,646	-4.2

<sup>1</sup> States in regions listed in footnote of Table 1.

<sup>2</sup> Includes, as available  $P_2O_5$ , 2 per cent of the colloidal

phosphate and 3 per cent of the phosphate rock marketed for direct application.



# Research

## Nematode-Bacteria Deadly to Insects

Dr. S. R. Dutky, USDA insect pathologist, has uncovered a nematode-borne disease that has proved deadly to several insects including codling moth, corn earworm, boll weevil, pink bollworm, vegetable weevil, a cabbage worm and the white fringed beetle.

The disease, he adds, is actually a nematode-bacteria combination. Nematodes, in piercing the intestine of attacked insect larvae or adults, release disease bacteria that rapidly multiply, killing the insect in usually less than 24 hours. They also serve as a source of food for the nematodes.

Limited field tests in Virginia apple orchards, conducted in cooperation with Dr. W. S. Hough, Virginia AES, indicate that 60 to 70 per cent control of codling moths may be possible. Nearly the same degree of control of corn earworm resulted in Beltsville tests.

The nematodes are described as members of the family *Steinernematidae*, a group known to attack only insects.

Tests have shown that they can be forced through a high-pressure spray nozzle without too great a degree of mortality and they are also quite resistant to most common insects.

## Develops Nitrate N Analysis Method

Robert M. Englebrecht, Lion Oil researcher, reported at a recent ACS regional meeting in Houston, Tex., development of a new analysis method for determination of nitrate nitrogen in the presence of ammonia or urea.

As described by Englebrecht, it is based on reduction of the nitrate ion with ferrous sulfate in acid solution followed by back titration of excess ferrous ion with

potassium permanganate. The new method is said to be faster than conventional tests and equally accurate. It works in the presence of ammonia, urea, potassium, sodium, chloride, sulfate and phosphate ions.

The Lion chemist pointed out that a correction factor is needed when urea is present but that samples with a wide variation in nitrate-to-urea ratio can be analyzed to an accuracy of better than one per cent.

## Treatment for Lily Root Rot Fungus

Oxyquinoline sulfate solution may control *Rhizoctonia* root rot fungi on lilies. Mrs. Francis W. Meyer, Connecticut Agricultural Experiment Station, reports that one or more treatments with 1:4000 solution keeps fungus in check, enables new roots to grow and the plant to resume normal development.

## Strep.-Pyrophyllite Found Effective

Experiments reported by Peter A. Ark, University of Missouri, in the PLANT DISEASE REPORTER, showed that streptomycin-pyrophyllite dusts, unlike mixtures with bentonite, liberate sufficient of the antibiotic to control fire blight as effectively as wettable streptomycin or copper-lime dust.

Formulations of 500 and 1000 ppm were prepared with two pyrophyllites, AAB and Nuclay and, even at the 500 ppm level were superior to copper-lime dust.

Ark pointed out that dust formulations of the antibiotic cost less per acre than wettable formulations. The pH of the pyrophyllites did not appear to influence either liberation of streptomycin or stability of the dust.

Tested for control of walnut blight, the mixture gave somewhat less control than streptomycin spray but was superior to a copper A dust

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# Chemicals

## GC Div. Releases New Fruit Miticide

This spring, fruit growers will have available a new miticide from General Chemical Div., Genite EM-923. Big advantages of the material are that a single application will control hard to kill early mites and that it is virtually non-toxic to beneficial insects and bees when used under normal conditions.

Genite is an organic chemical, 2,4-dichloro phenyl ester benzene sulfonic acid and is recommended for use on apples, peaches, pears, plums, prunes and almonds. It is compatible with most pre-bloom spray materials and can be applied at any time from dormant to petal fall sprays.

On early season mites (European red, brown almond, etc.) it is termed so effective that control lasts into mid-summer and has been known to reduce mite populations even into the following year.

Sales will be handled through General Chemical's regular chain of Orchard Brand dealers and, in Canada, distribution will be handled by the affiliated Nichols Chemical Co., Ltd.

## Extend Tolerance Date on Two Chems.

Effective date for tolerance establishment on MGK 264 and Sulfoxide has been extended to March 1. According to the agency, the extension was granted at request of the companies involved (McLaughlin Gormley King and S. B. Penick, respectively) because uses for the materials are considered non-seasonal.

## FDA Tolerances

Dow Chemical Co. has filed a petition proposing a tolerance of two ppm for residues of *p*-chloro-

phenyl *p*-chlorobenzenesulfonate on apples, peaches and pears and three ppm on citrus and plums.

A petition by Rohm & Haas Co. asks approval of tolerances for residues of 1,1-dichloro-2,2-bis(*p*-ethylphenyl) ethane in milk. To date FDA has held that milk must be kept free of any foreign substances because of its dietary importance to infants.

Requested by Rohm & Haas is approval of a residue tolerance of 0.2 ppm in milk or that residues in milk from use of the chemical on dairy animals be exempt from tolerance requirements. Also sought are tolerances of 15 ppm for residues in or on cherries and 25 ppm on certain leafy vegetables.

The BHC committee of NAC association has filed a petition asking a tolerance of 10 ppm for lindane residues on mushrooms.

Approved by FDA are various residues of methoxychlor, parathion, chlordane, glyodin and the inorganic bromides resulting from methyl bromide fumigation, on specific commodities.

## Booklet on Dieldrin Termite Control

Shell Chemical has released a four-page booklet entitled "Termite Control with Dieldrin." It tells how to detect termites and, in a series of illustrations, shows how pest control operators control them with dieldrin.

For a copy write Shell Chemical Corp., 380 Madison Ave., New York City 17.

## Shipment Seized Under M. B. Rules

First direct effects of the Miller Bill tolerance regulations were felt in December when two carloads of lettuce were seized in New York. Shipped from El Centro, Calif., the lettuce was contaminated with endrin, an insecticide not permitted for use on the crop.

It came from a 40-acre field which was left unharvested after FDA inspectors had sampled the first two cars.

## Bishopp Reviews Boll Weevil Resistance

There is no cause for alarm about resistance of boll weevils to insecticides, Dr. F. C. Bishopp told the Cotton Production Conference on December 16, but there is a need for careful analysis of the resistance factor.

He pointed out that it is generally agreed a number of factors aside from possible resistance could partly explain the difficulty experienced in controlling the pest in some areas last season. Although development of resistance to insecticides has long been recognized in a number of pests, he pointed out, "no outstanding cases of this phenomenon have been recorded among the beetles."

Two factors involved in heavy 1955 weevil damage cited by Bishopp were a heavy-carryover of the pest and favorable weather for their development.

To assure a good crop regardless of possible resistance, Dr. Bishopp recommended, among other practices: seed treatment for disease, application of insecticides as recommended and avoidance of too heavy fertilization.

## U.S. Potash Revises Chem. KCl Prices

Effective the first of this month, U. S. Potash Co. announced a bulk price for chemical grade muriate of potash (99.3 per cent KCl minimum) of \$26.00 per ton, f.o.b. Carlsbad, N. M., in minimum carloads of 40 tons; \$4.40 per ton additional for shipments in 100 lb. bags.

## Prices Increased By Climax Molyb.

Molybdenum products prices have been increased by Climax Molybdenum approximately 5 per cent. Pure molybdc oxide increased by five cents per pound to \$1.10 and technical molybdc oxide went up six cents per pound of contained molybdenum, ranging from \$1.30 to \$1.33 depending on the form.

# **PEST REPORTS**

*Presented in cooperation with the Economic Insect Survey Section, Plant Pest Control Branch, Agricultural Research Service, USDA.*

## **Corn Borers Down Slightly**

Results of a fall survey conducted by agricultural agencies in 23 states to determine the number of hibernating European corn borers shows the over-all average in the fall of 1955 to be slightly below the number found in the fall of 1954—164 larvae per 100 stalks compared with 190 in 1954.

Nine of the eleven Eastern states surveyed recorded an increase in the number of hibernating larvae over 1954. Some of the more important increases in the East were Delaware, from 60 borers per 100 stalks in 1954 to 241 in 1955; Maryland, from 41 to 140; New Jersey, from 28 to 177; and Rhode Island, from 39 to 131.

Five of the 12 North Central states surveyed recorded increases over the 1954 fall population.

Illinois recorded an average increase of 225 borers per 100 stalks in 1954 to 339 in 1955. Indiana increased from 102 to 172; Minnesota from 72 to 96; North Dakota from 37 to 47 and Wisconsin from 28 to 82.

Decreases were recorded in the three North Central states which had the highest average of hibernating larvae in 1954. Iowa decreased from 497 larvae per 100 stalks in 1954 to 351 in 1955; Nebraska from 353 to 186 and South Dakota from 424 to 131.

The number of known infested states, 37, remains the same as in 1954 but the total known infested counties increased to 1,644. The greatest increase in new county records for the European corn borer was in the Southern states.

Arkansas listed 18 new counties, Alabama 10, Virginia 7, Georgia 5, Mississippi 2, and Tennessee 1. Oklahoma recorded an increase of 3 counties and Nebraska 1.

Although primarily a pest of corn, the European corn borer in 1955 caused considerable concern in northern Alabama where the insect damaged pimento peppers to the extent that shipment of the peppers was discontinued in some areas before the entire crop was harvested. Of rather unusual interest was the finding of the borer in cotton stalks in Tennessee and Missouri during 1955.

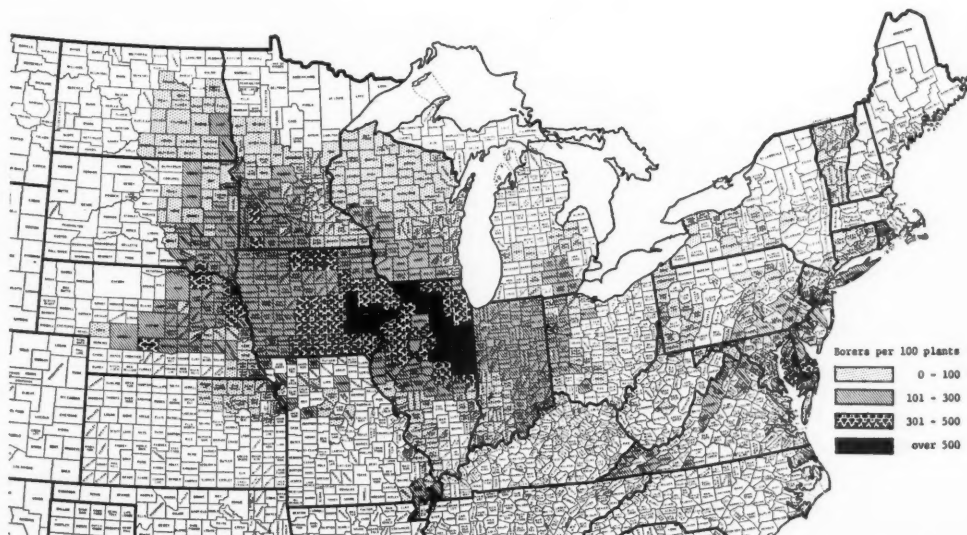
Overwintering fifth instar larvae were found in 1-2 per cent of the damaged cotton stalks examined during a limited survey in Missouri.

## **Increases in Boll Weevil Hibernation**

In the January issue of *FARM CHEMICALS*, it was reported that

## **European Corn Borer Abundance, Fall 1955**

No figures available for counties not shaded.



Map prepared by Economic Insect Survey Section, PPC, ARS, USDA, Dec. 1955

the number of boll weevils entering hibernation in the fall of 1955 in both Louisiana and South Carolina was considerably higher than in the fall of 1954. Hibernation surveys conducted in Georgia and North Carolina show increases in both states.

In Georgia 5 samples or 90 square feet of surface trash were taken from each of 42 farms. The average number of weevils per acre of surface trash was 799 in the fall of 1955 compared with 99 in the fall of 1954. The 1955 average for areas in Georgia is as follows: Northwest, 678 weevils per acre of surface trash; north central, 242; east central, 629; and south, 1,742. The maximum number of weevils per acre found on one farm in Georgia was 9,680 in Tift county.

In North Carolina collections to determine the number of hibernating boll weevils were made at five farms in each of 12 counties. The average number of hibernating weevils for all samples collected in the states was 4,146 per acre of trash compared with 1,334 in the fall of 1954. Comparable county figures are as follows: Cleveland, 290 in 1954 compared with 5,033 in 1955; Franklin, 1,065 with 2,710; Hoke, 484 with 7,744; Harnett, 1,334 with 1,646; Scotland, 968 with 14,714 and Sampson, 2,904 with 1,646.

The 1955 fall boll weevil hibernation survey in McNairy county, Tenn., shows an increase over 1954. Nine-hundred and two live weevils per acre of ground trash were found compared with 311 in 1954. The highest average number in any one sample was at the rate of 3,112 per acre of trash. The 1955 counts are the highest since 1952 when 2,259 were found.

In Mississippi surface woods trash was collected in 7 counties and examined for hibernating weevils. Five delta and 2 upland counties were included in the survey which showed an average of 5,054 weevils per acre of surface trash. Range for the samples was

at the rate of from 0 to 27,830 weevils per acre. The fall boll weevil hibernation survey program was begun in Mississippi in 1955; consequently, there are no previous comparable figures.

## S. Alfalfa Aphid

The spotted alfalfa aphid continues to be of vital concern to alfalfa producers in many of the Western states. During the latter part of December, 1955, and early January, 1956, reports of heavy populations or damage were received from several states including Oklahoma, California, Nevada, Utah, Texas and Arkansas. The insect has now been reported from Idaho, having been found in Oneida county during August, 1955.

## Citrus Blackfly

The citrus blackfly has again been taken in the Rio Grande Valley area of Texas. This collection of nine larvae from a single leaf of a grapefruit tree in a 30-acre orchard near Mercedes, Hidalgo county, Tex., was made November 18, 1955. As in the case of the previous finds arrangements were made immediately with the Texas Department of Agriculture officials for spraying the infested orchard.

## Texas Surveys Grain Insects

During the month of December, 1955, approximately 115 wheat fields in 23 Texas Panhandle counties were surveyed for insects that affect small grain.

Greenbugs were found in every county surveyed but counts were extremely low. The highest populations were found in Deaf Smith and Hansford counties ranging from 0 to 5 greenbugs per row foot.

Although found in all counties surveyed, populations of both the corn leaf aphid and the apple

grain aphid were very low. Thrips and flea beetles were found in practically every field surveyed but in very low counts, none sufficient to cause detectable damage.

The brown wheat mite had increased over previous surveys, the increase being especially apparent in the dry land fields of the north and northwest panhandle counties.

The plains false wireworm, *Eleodes opaca*, in both larval and adult stages was responsible for widespread damage in Carson and Armstrong counties in 1955. The adult is a general feeder and the larvae feeds on seeds and roots of young plants, especially small grain. Several fields of fall-planted wheat were completely destroyed in Carson county by the insect eating the seed before germination.

Beneficial insects were numerous in all sections of the Texas Panhandle. Nabids and lady beetles were very active and in most fields outnumbered harmful insects by a larger margin than the 2 to 1 ratio observed earlier in the fall.

In addition to the Texas report on the brown wheat mite, Oklahoma reports the pest from several counties. Counts in Lincoln county averaged 70 per linear foot.

## Vegetable Pests

Certain winter vegetable insects are on the increase in some sections. California reports heavy infestations of loopers on lettuce in the Palo Verde valley and medium heavy infestations of the cabbage aphid on cole crops in Santa Barbara county. In the lower Rio Grande valley of Texas a lettuce aphid was appearing in over 60 per cent of untreated lettuce fields. An insect tentatively identified as the tomato pinworm infested 60 per cent of the fruit in one tomato field of Hidalgo county, Texas. ▲



# Sulfuric Acid Tables Handbook

By H. C. Moore

Tables designed to save time and effort in calculating sulfuric acid stocks for inventory

Based on industry accepted standards adopted by the Manufacturing Chemists' Association

Acid table running from 1° to 66° Baume, Fuming sulfuric acid tables

Allowance for temperature tables

Equivalent per cents of 60° and 50° Baume acid, equivalent pounds of 50° Baume

Ammonia tables; determinations for  $\text{SO}_2$  in burner, chamber or exit gas and nitrous acid in nitrous vitriol; analysis of  $\text{H}_2\text{SO}_4$ ; measuring uniform acid volumes and weights with varying density and temperature

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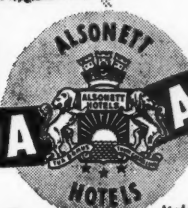
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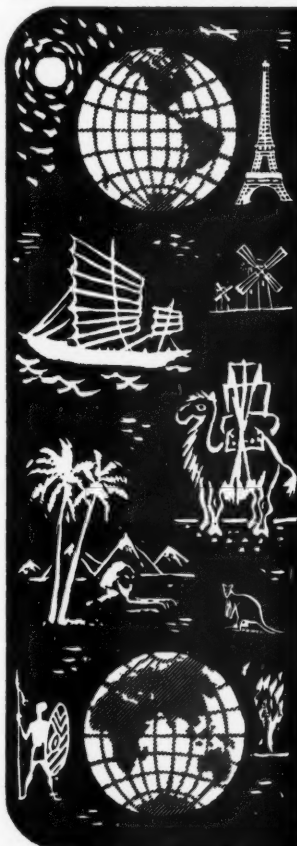
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by Dr. Melvin Nord

## PATENT REVIEWS

### Hastening the Sprouting and Growth of Dormant Buds

US 2,720,452, issued Oct. 11, 1955 to Frank Earl Denny and assigned to Boyce Thompson Institute for Plant Research, Inc. discloses a method for hastening the sprouting and growth of dormant buds, i.e. shortening the period of dormancy.

Aqueous solutions of calcium trichloroacrylate, trichloroacrylic acid, trichloroacetamide, or trichloroacetic acid, have been found very effective for this purpose in concentrations of 0.25 to 1.0 per cent.

In the treatment of dormant potatoes, for example, the potatoes may be used whole or cut into small pieces, each containing one eye and contacted with one of the above compounds. One satisfactory method of treating potatoes is to dip them in an aqueous solution, then remove them from the solution, store for about 24 hours, and plant.

The compounds are not highly volatile and treated potatoes may be stored in sacks, crates, or field boxes eliminating the need of tightly closed containers. In one case, potatoes treated during October developed buds which appeared above ground in 14 days.

Solutions containing 0.5 per cent gave best results; those around 1.0 per cent tend to cause some rot and other injury.

### Control of Suckers in Tobacco Plants

US 2,720,451, issued Oct. 11, 1955 to Donald B. Anderson and Robt. W. Wilson, assigned to Patent & Development, Inc., describes a method of controlling suckers on tobacco plants.

The method involves applying at the time of topping and before any substantial sucker growth occurs, a mineral oil having a viscosity greater than 100 Saybolt Universal seconds. The oil is applied to the top portion of the stalk in an amount sufficient to completely coat the sucker-producing areas of the stalk, permitting the oil to run down the stalk and coat leaf axils in which sucker buds are formed.

### Control of Plant Disease

US 2,720,727, issued Oct. 18, 1955 to Charles Pidacks and assigned to American Cyanamid Co., relates to prevention and control of plant infections caused by microorganisms, by treatment

of the plants with chlortetracycline, an antibiotic.

It has been found that by treating infected plants with this material it is possible to control growth of many pathogenic organisms without destruction of the host.

Plants, seeds or seedlings, bulbs, tubers, rhizomes, during either a dormant or growth stage may be treated effectively by an aqueous solution of 5 to 100 mg. chlortetracycline per liter.

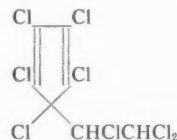
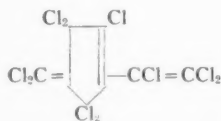
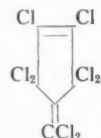
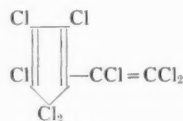
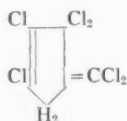
### Herbicidal Compositions

U. S. 2,719,785, issued Oct. 4, 1955 to Gordon B. Johnson and assigned to California Research Corp., describe preparation of a herbicidal concentrate as a stable oil-in-water emulsion of pentachlorophenol or 2,4-D acid.

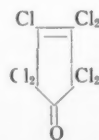
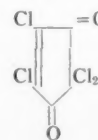
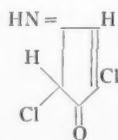
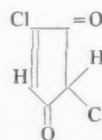
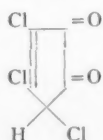
The patent describes new emulsifiers which are used for this purpose. They consist of blends of C<sub>6</sub>-C<sub>18</sub> alkyl sulfates with a C<sub>4</sub>-saturated aliphatic alcohol. ▲

## Pesticide Family Described

US 2,721,160, issued Oct. 18, 1955 to Jack S. Newcomer and assigned to The Pennsylvania Salt Manufacturing Co., describes a family of compositions which may be used in the control of fungi, bacteria and insects. The compositions consist of emulsions in water of one of the compounds listed below, together with a surface-active agent:



In US 2,722,497 issued Nov. 1, 1955 to the same inventor and assignee, added pesticides disclosed include these, among others:



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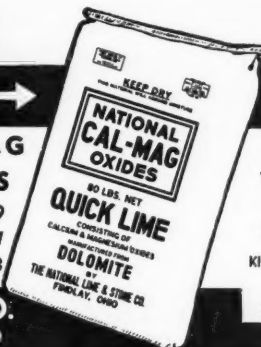
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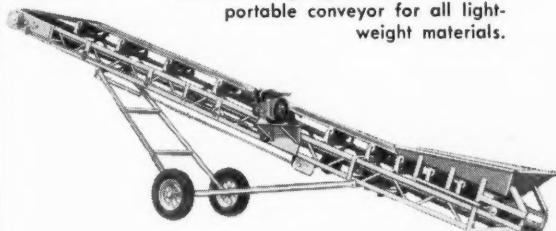
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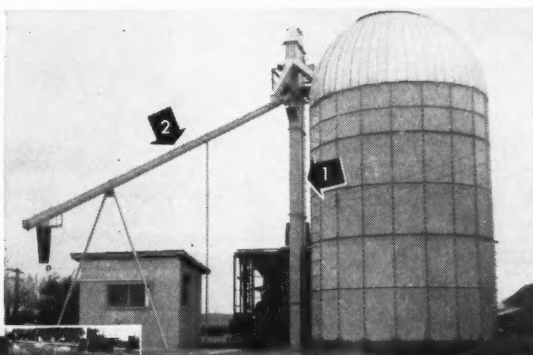
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- **MODEL 175 BELT & BUCKET ELEVATOR**  
No. 1, at right. Fully enclosed. Centrifugal discharge for permanent or temporary installations.

- **MODEL Q STATIONARY SCREW CONVEYOR**  
No. 2, at right. For materials that roll or become fluid in motion. Capacities to 30 TPH. (70# material)



- **MODEL UT-51 UNDERTRACK CONVEYOR**  
At left, convenient boxcar-to-plant conveying replaces obsolete "batch" handling. Handles 25-30 TPH. (70# material)

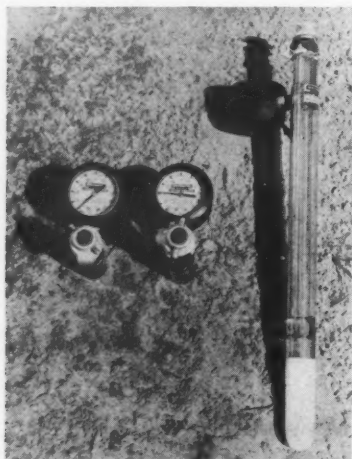


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## Equipment & Supplies

### Prosser Irrrometer Soil Moisture Unit

The Irrrometer is a new soil-moisture indicator now marketed by T. W. Prosser. Consisting of a hollow porous cup attached by an air-tight water-filled plastic tube



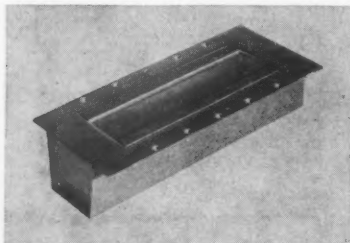
to a vacuum gauge, it automatically evaluates and registers soil moisture.

Normally used in pairs—one for the upper and another for the lower root zone—they can be located in key areas to indicate when and how much irrigation is required. For literature and case histories

**Circle 63 on Service Card**

### Dings Perma-Plate Alnico Magnet Line

A new line of non-electric Alnico Perma-Plate magnets has been announced by Dings Mag-



netic Separator Co. The design, based on dynamic tests involving

rapidly moving or entangled material burdens, is said to be more efficient in removal of tramp iron and iron of abrasion in all applications.

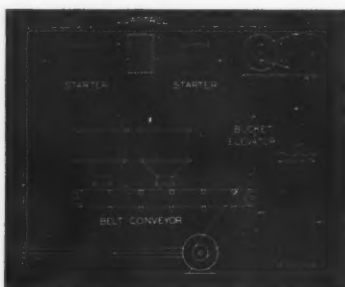
A new step face permits moving material to flow smoothly while the exposed face of the lading magnetic pole provides a recessed holding zone out of the direct path of the burden. The wide gap between magnetic poles assures a magnetic field which reaches out effectively.

Four basic types are included in the line, differing in effective magnetic range from 2½ inches or under through four inches. Each basic type is available in 35 standard sizes, from four through 72 inches. For a catalog with more details

**Circle 64 on Service Card**

### Loadtrol Automatic Rietz Control Unit

A Rietz Mfg. Co. unit priced under \$200 makes possible fully automatic remote control of electric motors. The Loadtrol can be used to protect motors from over-



load or underload conditions, insure continuous full capacity operation of feeders, etc.

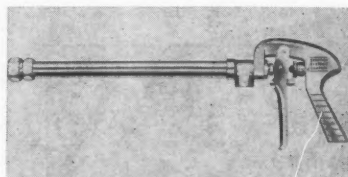
Activated by a current signal, it responds instantly on both stop and start functions. It can be installed with motors from five to 150 hp, 220 or 440 volts. For literature

**Circle 65 on Service Card**

### New S/S GunJet For Varied Sprays

Spraying Systems new GunJet No. 42 spray gun is built for use at pressures up to 800 pounds. A knurled ring trigger-stop may be set for any desired spray, and acts as the limit point for opening of the trigger action shut-off valve.

Long-wearing, hardened stainless steel orifice discs (replaceable



and interchangeable) are supplied in five different capacity ranges. TeeJet orifice tips may also be used.

By adjustment of the stop, any type of spray from straight stream through full cone spray to wide angle spray can be attained. For complete literature

**Circle 66 on Service Card**

### DuPont Squeeze Package for Dusts

"Whiff'n poof," says DuPont Company, describes the new Squeeze dust package in which four of its garden dusts will be marketed this year. A squeeze of the flexible package sends a puff of dust into the foliage mass.

The eight-ounce unit is a cylinder of Alathon polyethylene resin fitted with a directional nozzle. Labels, lids and bottoms of the package are weatherproof to keep it serviceable through repeated refills.

Insecticide-fungicide combinations to be available in the new container include DuPont Rose Insecticide and Fungicide, Floral Dust, Vegetable Garden Dust and Tomato Dust.

FARM CHEMICALS



## Suppliers' Briefs

**Chase Bag Co.** appointments: John P. Grady named assistant general sales manager; J. A. Sutherlin, manager of export sales; Harrison B. Rue, eastern regional sales director; J. T. Cleland, Dallas branch sales manager; and Don R. Munro, Milwaukee branch sales manager.

**Clark Equipment Co.** A new subsidiary, Clark Equipment International, C. A., has been formed to consolidate export functions of the firm's operating divisions throughout the world.

Clark has named a new distributor, J. W. Burrell of Winston-Salem, N. C., to handle Michigan products in all of North Carolina. Sheehan-Barting, Inc., Sioux Falls, S. D., has been appointed to sell and service the Michigan line in South Dakota.

**The Frank G. Hough Co.** New distributors have been appointed and additional territory assigned present distributors. Rish Equipment Co. now serves all of Ohio; J. D. Evans Equipment Co., Sioux Falls, all of South Dakota; Brandeis Machinery & Supply Corp., Mt. Vernon, has added territory in Southern Illinois; State Equipment Co. has been granted the Vermont territory and Orton Equipment Co. is new Hough distributor at Stratford, Calif.

**Kraft Bag Corp.** P. E. Bray has joined Kraft as field engineer, and P. F. Finley, as assistant sales manager in charge of multiwall bag sales in the Southeastern territory.

**Union Bag & Paper Corp.** Director of the newly created Package Engineering Dept. is William F. Jacobi. John F. Hordych has been named assistant director.

FEBRUARY, 1956

## Exact Weight Precision Scale for Sacking or Checkweighing



This high-speed scale is ideal for either production weighing or accurate checkweighing bags from automatic baggers. Visible dial indication with two inches of indicator travel for one pound of weight provides positive reading. Short lever movement together with hydraulic dashpot action brings indicator to rest quickly. Dial tower revolves for reading from any position. Can be furnished with vertical or slant tower. Commodity platform is cast aluminum—12" x 16½". Equipped with tare beam and necessary weights—capacity 150 lbs.

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## FERTILIZER MATERIALS MARKET

### New York

*January 12, 1956*

**Sulfate of Ammonia.** Movement of sulfate of ammonia is still restricted to buyers' immediate needs and stocks at production points were said to be heavy. Producers are hoping for some export business which so far has failed to show up in any quantity.

**Ammonium Nitrate.** A slightly better movement was reported by producers who are anxious to cut down present stocks at production points. Several new firms are expected to go into production shortly which should increase the available supply.

**Urea.** The market at the present time is said to be routine with production ample to take care of expected demand, particularly because of the increased supply available this year.

**Nitrogenous Tankage.** Movement was reported slow for this time of year. However, most producers expect shipments to increase within the next 30 days. No price changes are noted with the market quoted at \$4 to \$4.50 per unit of ammonia (\$4.86 to \$5.47 per unit N) according to shipping point.

**Castor Pomace.** Some material is available from time to time at \$40 per ton, f.o.b. production points, but the production is still small and with any increase in demand, existing stocks will quickly be absorbed.

**Organics.** Few price changes were noted in organic fertilizer materials as most buyers waited until the last minute before buying their requirements. Prices of some materials such as tankage and blood were around the low prices for the season. Tankage sold at \$4 per unit of ammonia (\$4.86 per unit N), f.o.b. Eastern

shipping points and blood sold at \$4.50 (\$5.47 per unit N). Soybean meal was slightly firmer because of an increased feed demand, and last sales were made on the basis of \$51 per ton in bulk, f.o.b. Decatur, Ill. Cottonseed meal sold at \$57.50 per ton, f.o.b. Memphis.

**Fish Meal.** Recent heavy arrivals of imported fish meal have eased up the market and menhaden fish meal was available at \$150 per ton, f.o.b. fish factories and imported fish meal could be purchased at slightly cheaper prices.

**Bone Meal.** Some imported feeding grade bone meal was sold at prices ranging from \$65 to \$70 per ton, f.o.b. ports on the Atlantic; and domestic bone meal was available at about \$65 per ton, f.o.b. shipping point for both feed and fertilizer.

**Hoof Meal.** Last sales were made on the basis of \$6.25 per unit of ammonia (\$7.59 per unit N) f.o.b. Chicago with most of the production going for use other than fertilizer.

**Superphosphate.** This material was said to be plentiful at most points, with buyers slow to take delivery on contract.

**Potash.** Shipments are still behind last year. Most buyers prefer to get a better picture of just how much fertilizer they will sell this Spring and don't want to be caught with any large inventories at the end of the season.

### Philadelphia

*January 12, 1956*

The materials market continues dull all along the line. Nitrogen chemicals are in extra good supply and organics are also without interest. There is quite a sufficiency of superphosphate, and there is room for improvement in the potash situation.

**Sulfate of Ammonia.** Coke-oven production is increasing and stocks are accumulating. While there is enough synthetic grade to meet all requirements, it is not accumulating excessively. The overall demand is slow.

**Nitrate of Ammonia.** Production has increased with consequent building up of inventories. Market is dull with little domestic demand at present.

**Nitrate of Soda.** Market is very quiet with stocks able to meet all calls. Some little activity is noted in the South.

**Blood, Tankage, Bone.** Blood and tankage are at present without apparent demand. The market is weaker and nominally at about \$4.50 per unit ammonia (\$5.47 per unit N) both in the Chicago area and here in the East. Bone meal is quoted at \$65 per ton.

**Castor Pomace.** Extremely limited movement reported at \$40 per ton.

**Fish Scrap.** Market is very quiet and quotations of \$153 per ton for meal, and \$148 for scrap are entirely nominal.

**Phosphate Rock.** Fair movement is reported in the higher grades, with supply and demand about level. Lower grades are more plentiful. Some producers are said to now have advanced prices to absorb recent increased fuel and labor costs.

**Superphosphate.** While the triple grade is not too plentiful, there is a goodly supply of normal. Market is quiet and no price changes are indicated.

**Potash.** The demand from mixers is still disappointing, but improvement is looked for shortly as the Spring season approaches. The price of the refined chemical grade muriate is scheduled to advance one dollar per ton February 1.

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Specialty: Analysis of Fertilizer Materials and Phosphate Rock. Official Chemists for Florida Hard Rock Phosphate Export Association. Official Weigher and Sampler for the National Cottonseed Products Association at Savannah; also Official Chemists for National Cottonseed Products Association.

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## Dictionary of Plant Foods 1955 Edition \$1.00 postpaid

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MONARCH MFG. WORKS, INC.

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HOOFMEAL

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VEGETABLE MEALS

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## Statistics

### NH<sub>3</sub> Output, Plant Food Use Up in '55

Anhydrous ammonia output in 1955 is estimated by BDSA at 3,420,000 short tons, an increase of 25 per cent. Equivalent to 2,816,000 tons of nitrogen, the production represented a rate of output equal to 96 per cent of January 1, 1955 capacity.

Productive capacity—3,545,000 tons at the beginning of 1955—was expected to reach 4,072,000 tons by January 1st of this year and about 4,757,000 tons by early 1957.

Fertilizer application of ammonia accounted for 74 per cent of total distribution compared with 67 per cent in 1953.

### '54-55 Conn. Farm Fert. Sales Down

Commercial fertilizer sales in Connecticut during the year ended June 30, 1955 totaled 55,333 tons in addition to 4,671

tons of special and home mixtures. This was a decrease of over 7,000 tons in commercial materials but an increase of nearly 1,700 tons in special mixtures compared with 1953-54.

### Sulfur Production Reaches New Peak

Another production peak was reached in 1955 as sulfur output climbed to an estimated 6,900,000 long tons, 250,000 tons above 1954, according to L. M. Williams, president of Freeport Sulphur Co.

### P. Rock Shipments Triple Since 1939

In 1954, phosphate rock shipments totaled 13,366,000 long tons valued at \$118 million, according to the Census of Mineral Industries.

Shipments represented a three-fold increase over output in 1939, year of the last census. Capital expenditures for exploration and development work, machinery and new construction amounted to \$11 million.

### Minerals Volume Hits \$15.8 Billion

Last year US minerals output hit a new record of \$15.8 billion, 11 per cent over 1954 and included gains in nearly all commodities.

Production of fertilizer minerals reached another peak because of the Florida strike, phosphate rock output gained only slightly but potash production rose about 7 per cent to an estimated 2,100,000 short tons valued at \$78 million.

### Oct. Super Output, Volume, Stocks Up

Production of 214,898 short tons (100 per cent APA) of superphosphate in October was a gain of 18 per cent over September and 16 per cent above 1954. Shipments, at 127,376 tons, increased 10 per cent from the previous month's volume and two per cent over October, 1954.

Stocks on hand at the end of the month were 6 per cent greater than those held on September 30, and 15 per cent over stocks at the end of October, 1954.

## Production — October, 1955

Compiled from Government Sources

Chemical	Unit	October		September
		1955	1954	1955
Ammonia, synth. anhydrous	s. tons	265,926	230,098	*231,954
Ammonia liquor, coal & coke (NH <sub>3</sub> content)				
(including diam. phosphate & ammonthiolanate)	pounds	4,253,262	2,705,100	4,110,264
Ammonium nitrate, fert. grade (100% NH <sub>4</sub> NO <sub>3</sub> )	s. tons	149,723	142,833	*119,961
Ammonium sulfate				
synthetic (technical)	s. tons	93,069	78,602	77,133
coke oven by-product	pounds	163,957,606	138,973,800	162,466,141
BHC (Hexachlorocyclohexane)	pounds	3,700,511	1,829,999	6,492,307
Gamma content	pounds	846,355	337,999	1,071,258
Copper sulfate (gross)	s. tons			
DDT	pounds	10,273,183	5,525,628	10,190,027
2,4-D Acid	pounds	3,154,268		2,963,325
esters and salts	pounds	2,006,223	1,163,819	1,660,774
esters and salts (acid equiv.)	pounds	1,628,446	905,977	1,315,979
Phosphoric acid (50% H <sub>3</sub> PO <sub>4</sub> )	s. tons	1320,269	245,893	*318,254
Sulfur, Native (Frasch)	l. tons	545,159	453,660	498,591
Recovered	l. tons	36,100	28,400	30,800
Sulfuric acid, gross (100% H <sub>2</sub> SO <sub>4</sub> )	s. tons	1,354,538	1,183,241	*1,259,314
Chamber Process (100% H <sub>2</sub> SO <sub>4</sub> )	s. tons	190,636	208,366	176,877
Contact Process (100% H <sub>2</sub> SO <sub>4</sub> )	s. tons	1,163,902	974,875	*1,082,437
Superphosphate (100% APA)	s. tons	214,898	184,856	*182,209
Normal (100% APA)	s. tons	141,357	130,302	*121,223
Enriched (100% APA)	s. tons	1,661	2,180	3,179
Concentrated (100% APA)	s. tons	71,126	50,816	57,379
Wet Base (100% APA)	s. tons	754	1,415	428
2,4,5-T Acid	pounds			111,072

\* Revised.

<sup>1</sup> Includes quantities for 1 plant previously not reporting.



**FOR EVERY CROP**

CORN WHEAT TOBACCO FRUIT VEGETABLES COTTON GRASSES

**FOR EVERY NEED**

WEED CONTROL PRE-EMERGENCE SPRAYING LIQUID FERTILIZER SPRAYING INSECTICIDE SPRAYING FUNGICIDE SPRAYING SOIL FUMIGATION LIVESTOCK SPRAYING

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Over 400 interchangeable orifice tips to fit any TeeJet Spray Nozzle . . . give you a choice to meet the need of any crop and any type of spraying. Tip types include flat spray, hollow cone, full cone, and straight stream. Try TeeJet Spray Nozzles . . . proved best in the field . . . guaranteed for exact performance.

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Cut production costs by packaging modern valve bags with an AUGER-MATIC. It fills them quickly to desired weight . . . it shakes and settles fluffy materials . . . shuts off automatically.

Valve bags fit snugly on AUGER-MATIC spout so no dust escapes . . . keeps bags clean . . . eliminates costly tying or bag closing equipment.

AUGER-MATIC Bag Packer is equipped with multiple auger . . . packs any materials from powder to pellets. Easily moved from one filling point to another.



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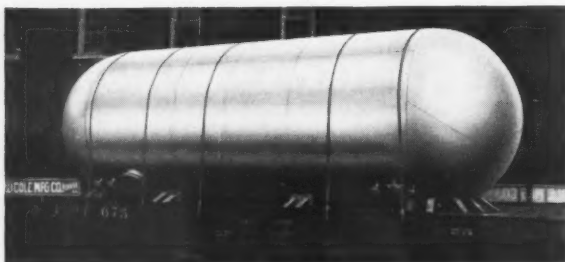
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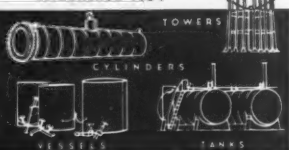
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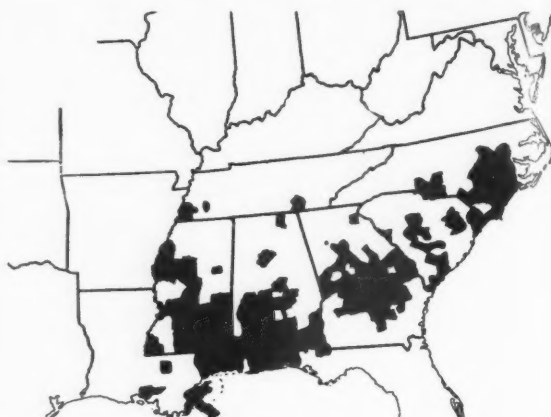
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from USDA Coop. Economic Insect Report



**White Fringed Beetle.** Adaptable through much of the US, it feeds on a variety of plant species.

**Sweetclover Weevil.** Distribution was compiled from state reports (46) and ARS records by ECISS, PCC.



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FARM CHEMICALS

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## **editorial**

# **Opportunities in Weed Control**

**W**EEDS are big business, Byron Shaw told the Weed Society of America at its charter meeting. Just as large is the job of helping to reduce the \$4 billion lost to these pests each year and the potentials offered by effective weed control.

Two major opportunities were outlined by Shaw—helping to improve farmers' present economic position and aiding them to adjust their operations to meet changes in demand for farm commodities. While his comments were aimed at researchers attending the WSA sessions, they do include points that can and should be backed by members of the industry, in some cases by direct effort.

Ohio experiments have shown, according to Shaw, that corn farmers could reduce weed control costs from \$3.75–\$6.25 for hand cultivation to \$3.40 with chemicals; in Mississippi, chemical control in cotton has averaged \$9 per acre in cost, compared to \$15 for conventional means. Despite such figures, he pointed out, few farmers rely exclusively on chemicals and only 15 per cent of corn acreage and under one per cent of the cotton area was so handled in 1952.

Why are farmers reticent to rely on chemical methods? Labor, cash on hand and farm prices all enter into the situation but there is another major factor—risk. As yet we have not, with the exception of a few cases, removed the risk that results may not be consistently good. The average farmer, despite the prospects of higher profits, can't afford to take a chance.

**T**HE second big opportunity involves the shifting of acreages from surplus crops to other enterprises. Many farmers look to livestock production as a possible solution, and this is a difficult field with problems involving finance, credit, market potentials, know-how, farm changeover and a big obstacle, weeds.

Figures presented by Shaw show the importance weeds play in livestock enterprises—they take 12 per cent of the grazing value of range lands and are even more costly on many cultivated and permanent pastures; in Western irrigated areas alone water losses due to weeds run over \$25 million; in the Northeast, Piedmont Plateau and intermountain areas, millions of acres are unproductive and over-run with weeds.

In these latter areas, the land is often too stony or too sloping for cultivation. With the proper chemicals to remove the weedy growth, followed by re-

seeding of adapted grasses, they could be placed in livestock production—research indicates that this can be done economically.

In some cases, herbicides can be used to remove undesirable forage plants to permit more palatable species to take over without the necessity of re-seeding.

Here again, "Why don't farmers do it?" is the natural question and again the same answer holds true—our research isn't convincing enough. As a result, only 2½ million acres of pastures and rangelands are sprayed for weed and brush control. Shaw cited estimates that on 30 million of the 90 million acres of mesquite infested range spraying would pay good returns.

**T**O DEVELOP these opportunities and the tremendous market they represent we need to know a great deal more about a variety of related subjects. Here are six major ones suggested by Shaw:

1. Refinement of techniques in improving herbicide formulations, testing them on a wide basis, under varying circumstances.

2. More data on every type of crop and weed. (At present, 36 million acres of cereals represent a lost market because they are underseeded with legumes, susceptible to chemical injury.)

3. Coping with the shifts in weed population that result from control of a particular weed. In one test, 2,4-D controlled giant ragweed in an infested field but the area was then taken over by wild cucumber, a pest found only occasionally before the experiment was conducted; 2,4-D handles broad-leaf weeds in corn, but grassy species become a problem.

4. Fundamental knowledge about weeds—their nature, life cycle, growth habits, seeding habits and ecology.

5. More preliminary data on herbicides—volatility; relations to temperature, moisture and light; effects on crop growth and the quality of the harvested product.

6. Better application equipment is needed.

Both biological and pathological controls should be exploited, added Shaw, pointing to the value of pests such as the klamath weed parasite or prickly pear cactus parasite and the possibilities offered by a disease that would attack a weed without injuring the crop.

A final problem mentioned by the ARS administrator, one in which industry can also help, is the need of trained personnel in both research and education phases of weed control. He urged that colleges and universities be informed on the need for related courses and that students be encouraged to do graduate work in study of weeds and their control.

G. P. T., JR.  
*Editor*

FARM CHEMICALS



# Buyers' Guide

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Shell Chemical Co., Agr. Chem. Div., Denver, Colo.

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Lion Oil Co., El Dorado, Ark.  
Mississippi River Chem. Co., St. Louis, Mo.  
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See Sulfate of Ammonia

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Eucambia Bay Chem. Corp., Pensacola, Fla.  
Lion Oil Company, El Dorado, Ark.  
Mississippi River Chem. Co., St. Louis, Mo.  
Nitrogen Div., Allied Chemical & Dye Corp., N. Y. C.  
Phillips Chemical Co., Bartlesville, Okla.  
Sohio Chemical Co., Lima, O.

**NITROGEN MATERIALS—Organic**  
American Agricultural Chemical Co., N. Y. C.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
International Min. & Chem. Corp., Chicago, Ill.  
Jackie, Frank R., New York City  
McIver & Son, Alex. M., Charleston, S. C.  
Smith Rowland Co., Norfolk, Va.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

**NOZZLES—Spray**  
Monarch Mfg. Works, Philadelphia, Pa.  
Spraying Systems Co., Bellwood, Ill.

**PARATHION**  
Ashcraft-Wilkinson Co., Atlanta, Ga.

**PHOSPHATE ROCK**  
American Agricultural Chemical Co., N. Y. C.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
International Min. & Chem. Corp., Chicago, Ill.  
McIver & Son, Alex. M., Charleston, S. C.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

**PHOSPHORIC ACID**  
American Agricultural Chemical Co., N. Y. C.

**PLANT CONSTRUCTION—Fertilizer and Acid**  
Link-Belt Co., Chicago, Ill.  
Stedman Foundry and Machine Co., Aurora, Ind.  
Sturtevant Mill Co., Boston, Mass.

**POTASH—Muriate**  
American Potash & Chemical Corp., Los Angeles, California  
Ashcraft-Wilkinson Co., (Duval Potash) Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
Duval Sulphur & Potash Co., Houston, Tex.  
International Min. & Chem. Corp., Chicago, Ill.  
McIver & Son, Alex. M., Charleston, S. C.  
Potash Co. of America, Washington, D. C.  
United States Potash Co., N. Y. C.

**POTASH—Sulfate**  
American Potash & Chemical Corp., Los Angeles, California  
International Min. & Chem. Corp., Chicago, Ill.  
Potash Co. of America, Washington, D. C.

**PRINTING PRESSES—Bag**  
Schmuts Mfg. Co., Louisville, Ky.

**PYROPHYLLITE**  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Pioneer Pyrophyllite Producers, Beverly Hills, Calif.

**REPAIR PARTS AND CASTINGS**  
Stedman Foundry and Machine Co., Aurora, Ind.

**SCALES—Including Automatic Baggers**  
Stedman Foundry and Machine Co., Aurora, Ind.

**SCREENS**  
Ludlow-Saylor Wire Cloth Co., St. Louis, Mo.  
Stedman Foundry and Machine Co., Aurora, Ind.  
Sturtevant Mill Co., Boston, Mass.  
Williams Patent Crusher & Pulverizer Co., St. Louis, Mo.

**SEPARATORS, AIR**  
Williams Patent Crusher & Pulverizer Co., St. Louis, Mo.

**SHOVEL LOADERS**  
Clark Equip. Co., Benton Harbor, Mich.  
Hough, The Frank G. Co., Libertyville, Ill.  
Jaeger Machine Co., Columbus, O.  
Tractomotive Corp., Deerfield, Ill.

**SOILTEST EQUIPMENT**  
The Edwards Laboratory, Norwalk, O.

**SOLVENTS**  
Crowley Tar Products Co., New York City  
Richfield Oil Corp., Los Angeles, Calif.

**SPRAYERS**  
Finco, Inc., N. Aurora, Ill.

**SPRAYS**  
Monarch Mfg. Works, Inc., Philadelphia, Pa.  
Spraying Systems Co., Bellwood, Ill.  
Baughman Mfg. Co., Jerseyville, Ill.

**SPREADERS, TRUCK**  
Baughman Manufacturing Co., Jerseyville, Ill.  
Highway Equipment Co., Cedar Rapids, Ia.

**STORAGE BUILDINGS**  
Butler Manufacturing Co., Kansas City, Mo.

**STORAGE TANKS**  
Butler Manufacturing Co., Kansas City, Mo.  
Cole, R. D., Manufacturing Co., Newnan, Ga.

**SULFATE OF AMMONIA**  
American Agricultural Chemical Co., N. Y. C.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.

Bradley & Baker, N. Y. C.  
Jackie, Frank R., New York City  
Lion Oil Co., El Dorado, Ark.  
Nitrogen Div., Allied Chemical & Dye Corp., N. Y. C.  
Phillips Chemical Co., Bartlesville, Okla.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

**SULFATE OF POTASH—MAGNESIA**  
International Min. & Chem. Corp., Chicago, Ill.

**SULFUR**  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Texas Gulf Sulphur Co., New York City  
Woodward & Dickerson, Inc., Philadelphia, Pa.

**SULFUR—Dusting & Spraying**  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
U. S. Phosphoric Products Div., Tennessee Corp., Tampa, Fla.

**SULFURIC ACID**  
American Agricultural Chemical Co., N. Y. C.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
International Min. & Chem. Corp., Chicago, Ill.  
Lion Oil Company, El Dorado, Ark.  
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.

**SUPERPHOSPHATE**  
American Agricultural Chemical Co., N. Y. C.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
Davison Chemical Co., div. of W. R. Grace & Co., Baltimore, Md.  
International Min. & Chem. Corp., Chicago, Ill.  
Jackie, Frank R., New York City  
McIver & Son, Alex. M., Charleston, S. C.  
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

**SUPERPHOSPHATE—Concentrated**  
Armour Fertilizer Works, Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
International Min. & Chem. Corp., Chicago, Ill.  
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

**TALC**  
Ashcraft-Wilkinson Co., Atlanta, Ga.

**TANKAGE**  
American Agricultural Chemical Co., N. Y. C.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Bradley & Baker, N. Y. C.  
International Min. & Chem. Corp., Chicago, Ill.  
Jackie, Frank R., New York City  
McIver & Son, Alex. M., Charleston, S. C.  
Woodward & Dickerson, Inc., Philadelphia, Pa.

**TANKS—NH<sub>3</sub> and Liquid N**  
Butler Manufacturing Co., Kansas City, Mo.  
Cole, R. D. Manufacturing Co., Newnan, Ga.

**TOXAPHENE**  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Pittsburgh Coke & Chem. Co., Agr., Chem. Div., Pittsburgh, Pa.

**TRUCKS—SPREADER**  
Baughman Mfg. Co., Jerseyville, Ill.  
Highway Equipment Co., Cedar Rapids, Ia.

**UREA & UREA PRODUCTS**  
Atkins, Kroll & Co., San Francisco, Calif.  
Bradley & Baker, N. Y. C.  
Grand River Chem. Div., Deere & Co., Tulsa, Okla.  
Nitrogen Div., Allied Chemical & Dye Corp., N. Y. C.  
Sohio Chemical Co., Lima, O.

**UREA-FORM**  
Nitro-Form Agricultural Chemicals, Woonsocket, R. I.

**VALVES**  
Monarch Mfg. Works, Inc., Philadelphia, Pa.

**ZINC SULFATE**  
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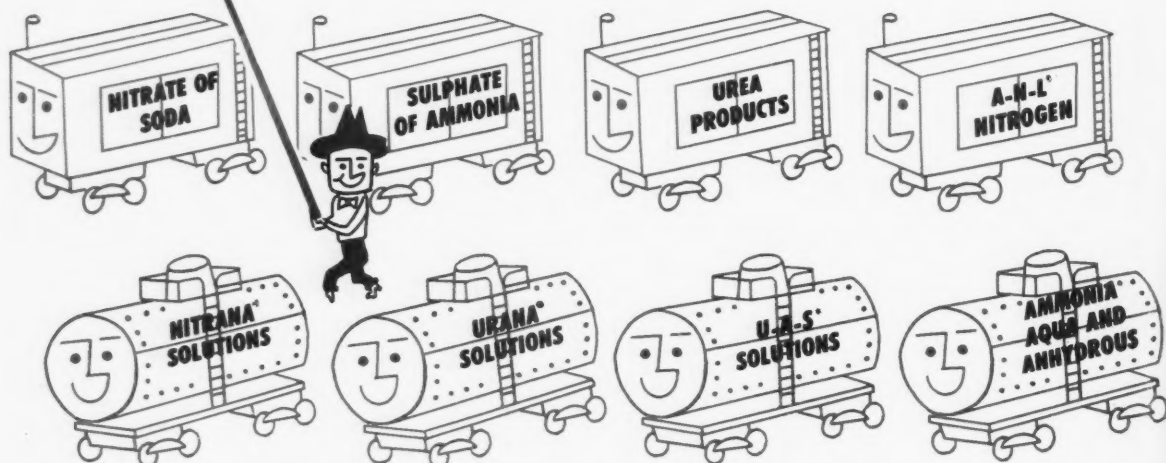
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Kalamazoo, Mich. • San Francisco 3, Cal. • Los Angeles 5, Cal.





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